The Harveian Oration

ON

THE NEED OF RESEARCH IN MEDICINE.

Delivered before the Royal College of Physicians of London on St. Luke's Day, 1907,

By FREDERICK TAYLOR, M.D. Lond., F.R.C.P. Lond.,

CONSULTING PHYSICIAN, GUY'S HOSPITAL, ETC.

Mr. President,—In accepting at your hands the office of Harveian Orator, and in entering upon my task this day, I have tried to think that I need not excuse myself for undertaking it nor apologise for any want of that fitness which you have the right to demand. It would be disloyal of me to throw any doubt upon the wisdom of your election and my plain duty was to fulfil your wishes to the best of my ability. But the more I have considered the subject which lies before us to-day, and the more I have read of the orations which have been given in recent years, the more I feel the honour that has been conferred upon me in the present appointment, the more oppressive and arduous at the same time seems the duty with which that honour is associated. I enter upon the task with no less, but more, apprehension than can have troubled my predecessors lest I should fail in doing justice to the subject: with much greater certainty than anyone can have entertained, that my presentation of it will fall short of excellence.

We are met here to-day in honour and memory of William Harvey and for the purpose of carrying out the wish expressed by him that an oration should be delivered annually in the College, with certain definite objects. It is conceivable that a bequest similar to Harvey's, and accompanied by like conditions, might have been made by a Fellow of moderate attainments, of ordinary abilities, and distinguished by no great achievements in medical or physiological research. The fact that the present oration has been imposed upon us by one of the greatest of medical scientists who first discovered the true relations of the heart and its movements to the blood which passes through its cavities gives an importance to the oration which it might not otherwise have had and justifies the practice which has been almost universal of making an eulogium of Harvey a necessary part of the orator's duty.

It is scarcely necessary for me to recall the facts of Harvey's life. Born at Folkestone in 1578 he was educated at Canterbury and went to Cambridge as the age of 16 years, where he took the degree of Bachelor of Arts three years later. For his medical education he proceeded to Padua, where he studied under Fabricius of Aquapendente, and becoming a Doctor of Physic there at the age of 24 years, received in the same year at Cambridge the degree of Doctor of Medicine. Soon afterwards he married and commenced practice, and being entered on the roll of candidates for the Fellowship of this College in 1604 he became a Fellow three years later, at the age of 29 years. In 1610, at the age of 32 years, he was appointed physician to St. Bartholomew's Hospital, and some years later he received the Court appointment of physician extraordinary to James I, and some ten years later again he was made physician-in-ordinary to Charles I, whom he accompanied on two or three occasions to Scotland, and with whom he was present at the Battle of Edge Hill in 1642. He retired from his Court appointment in 1846 at the age of 68 years, and soon afterwards withdrew from practice and died full of honours in his eightieth year. The point of interest to us all here is when and how he carried on the observations and experiments which have made his name famous and which have rightly earned for him the title of discoverer of the circulation of the blood. And it is quite clear that it was comparatively early in his career that he was in a position to roll away the clouds of doubt, misconception, and obscurity which enveloped the question of the heart's action and to come to the correct conclusions as we know them in the present day. The treatise, indeed, "Exercitatio de Motu Cordis et Sanguinis," was published in 1628, when Harvey was 50 years of age, but he states in his preface that the substance of the book had been given in his lectures before this College for nine years or more, and in his notebook dated 1616 that is, 12 years previously, the essential facts are referred to.

I shall not attempt here to open up again the discussion upon this subject, to state the position of the question at the time he dealt with it, or to give in any detail the arguments based upon innumerable observations and experiments upon animals, living and dead, which convinced him of the truth. Suffice it to say that his chief points are the position and direction of the valves in the veins; the effects of ligatures upon the vessels, and more than all perhaps his ingenious calculation that the amount of blood passing through the heart in the day, as estimated by the size of its cavities and the number of beats per minute, was vastly more than was introduced into the body from outside in the same time. Thence came the conclusion that the blood must not only *move* in the vessels, which was already known, but that it must move from the heart and come back to the heart repeatedly—that is to ray, must move in a circle. "*Cœpi egomet mecum cogitare, an motionem quandam quasi in circulo haberet.*" What, therefore, Harvey discovered was not the movement of the blood, but its circulation from the heart into the various parts of the body and thence back again to the heart, from the heart again into the lungs, and thence back again to the central pulsating organ. In his own day the events which he asserted were doubted; in more recent times, when the fact of the circulation can no longer be denied, Harvey's claim to have discovered it has been disputed, and even comparatively lately the subject of the Harveian oration by Dr. George Johnson was a disproof of the statement by Italian physicians that this great physiological discovery was made by one of their countrymen, Cesalpino. But Harvey's work was not confined to the subject of the circulation of the blood, involving though it did an enormous amount of experimentation and much correspondence subsequently in defence of it. For besides some medical observations which have been lost there is his large work on Animal Generation, with shorter treatises on parturition, on the uterine membranes and humours, and on conception. And a perusal of these can only increase our admiration for his wonderful diligence in research, showing, as they do, the thorough and untiring way in which he subjected any question that he considered to the test of actual observation and experiment.

It is one of the definite objects for which Harvey caused this oration to be founded that the Fellows of the College should be exhorted to search and to study the secrets of nature by way of experiment; and in fulfilling this part of my duty I may call attention to some passages in the introduction to his work on Generation as illustrating his own convictions at that time as to the necessity of looking to Nature herself for all knowledge and truth.

> For although it is a new and difficult road in studying nature, rather to question things themselves, than by turning over books to discover the opinions of philosophers regarding them, still it must be acknowledged that it is the more open path to the secrets of natural philosophy, and that which is less likely to lead into error.
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> Nor is there any just cause wherefore the labour should deter anyone, if he will but think that he himself only lives through the ceaseless working of his heart. Neither, indeed, would the way I propose be felt as so barren and lonely, but the custom, or vice rather, of the age we live in, when men inclined to idleness prefer going wrong with the many to becoming wise with the few through dint of toil and outlay of money. The ancient philosophers, whose industry even we admire, went a different way to work, and by their unwearied labour and variety of experiments searching into the nature of things, have left no doubtful light to guide us in our studies.

But he continues, we must not allow that all truth was engrossed by the ancients and that nothing remains to be known; remarkable discoveries have been made and toil is sweet "when the pains of discovering are amply compensated by the pleasures of discovery."

> It were disgraceful, therefore, with this most spacious and admirable realm of nature before us, and where the reward ever exceeds the promise, did we take the reports of others upon trust and go on coining crude problems out of these and on them hanging knotty and captious and petty disputations. Nature is herself to be addressed, the paths she shows us are to be boldly trodden, for thus, and whilst we consult our proper senses, from inferior advancing to superior levels, shall we penetrate at length into the heart of her mystery.

And further he says:—

> Diligent observation is therefore requisite in any science and the senses are frequently to be appealed to. We are, I say, to strive after personal experience, not to rely on the experience of others.
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> I would, therefore, have you, gentle reader, to take nothing on trust from me concerning the generation of animals; I appeal to your own eyes as my witnesses and judge.

It has often been remarked that Harvey's work is one of the best examples of the inductive method and that the time at which he worked precludes the possibility that he could have been influenced by a study of Bacon's Novum Organum. But it is interesting to remark that Harvey was not conscious

that he was working on any new method, but only that he was returning to a system which had, indeed, been long neglected, which had been nevertheless, as he believed, in past ages employed by those whom he speaks of as the ancient philosophers. It may be difficult to form an accurate idea from what writings have come down to us of the extent to which men's minds in the middle of the seventeenth century were set upon the desire for a more intimate acquaintance with natural phenomena, but that desire cannot possibly have been as intense or as widespread as it is now. Amongst Fellows and Members of a College of Physicians or of Surgeons, amongst the members of the profession of medicine in general, amongst the scientific men throughout the kingdom, whether they be chemists or physicists—not now confined as long ago they were almost entirely within the ranks of the physicians—amongst all these, I say, there is really little need to press home the necessity of research and experiments.

Harvey's injunction to search and study out the secrets of nature by way of experiment wants to be addressed to the lay public, not, indeed, that they may experiment themselves, but that they may promote and forward such experimentation, or at least not hinder and obstruct it. No less than Harvey in his day, we realise, and would impress upon those outside the profession, that nature is something more than dry bones and dead anatomy; that not so much what they are as how they work is what must be known with regard to the structures of the body before we can satisfy our needs as physicians, striving to ward off disease, to keep the human machine in proper working order and to prevent it stopping altogether. Can one imagine anyone attempting to teach a student or boy the use of a steam engine or even a more simple piece of mechanism by merely showing him the machine at rest? Until they move, the piston and cylinders, flywheel and cogwheels have no meaning; when in action the influence they have one upon another, the prime movers and the secondary pieces, can be seen in their proper relations. Complicated as a steam engine may be, it is simplicity itself compared with the human or animal machine which involves not only principles of pure physics, but of a chemistry of the highest degree of complexity, of physics which seem to differ materially from those of the inorganic world, and of a vital force—that life—which as yet nobody understands and of which no one has even been able to give a satisfactory definition. Is it surprising that in these circumstances the necessity is felt of testing the vital operations in action and not resting content with the mere observation of the changes which have taken place in the structures as the result of internal or external influences?

Opposed to this necessity from the point of view of a desire for knowledge is the humane sentiment so largely entertained and operating for restricting the interference of science with the comfort and existence of the lower animals. In whatever degree justified from the point of view of sentiment there is no doubt that these restrictions enforced by Parliament must limit the number of members of the profession, must limit the number of Fellows of this College, who can enter upon any experimental researches, and must prevent to a large extent our full compliance with the precept of our great predecessor in this College. It is perfectly true that research is still possible and experiments may yet be undertaken without interfering with the comfort of any other animal than the highest of all, man himself; but the progress that can be made, with such limitations, is exceedingly slow and the opportunities so few and far between that few of us can hope to gain any truth thereby. Experiments of any value, research of any depth, almost necessarily fall into the hands of a few persons, those usually who have obtained permission, almost reluctantly given and jealously criticised, to perform experiments upon living animals. In Great Britain there are 34 258 persons on the Medical Register and the persons licensed under the Vivisection Act in 1906 numbered 402. Of these, 123 performed no experiments. While allowing that not everyone wishes to experiment or is competent to experiment with any advantage, we cannot help regarding this as a very small proportion of a body of scientific men, to be allowed by the community or States to make any consistent and proper effort to improve their knowledge and their power over disease. The results of such a policy are only prevented from being disastrous by the intimate relations of scientific men all over the world; and by the fact that the defects of research in one country may be compensated by the enthusiasm for more accurate knowledge in another. Harvey at least felt the absolute importance of going direct to nature, and living nature, in order to solve the problems of the circulation; he exposed the heart of deer and other animals in order to study the rhythm and mode of contraction of the cavities; and it is obvious that by such a method only can a correct conclusion on this point be arrived at.

The advent of the present Parliament has seen another attempt made by certain associations to bring about the total abolition by Act of Parliament of the practice of experiments upon animals and I think I should take this opportunity to make some reference to it; and in consequence a Royal Commission, of whom our late President, Sir William S. Church, is a member, has been appointed by the Government to investigate the subject afresh and to report upon it. The Commission held its first meeting to hear evidence upon Oct. 31st, 1906; it held sittings in Lent and Easter terms of this year; and it has published the evidence in three separate volumes. This College, among others, was invited to send a representative to give evidence before the Commission and I had the honour of being asked to join you for this purpose. We drew up a short memorandum on the evidence we were prepared to submit, and we appeared before the Commission on March 5th. A copy of our evidence and examination has been published in the Minutes of Evidence which form the Appendix to the Second Report issued in the spring, and it is unnecessary for me to attempt to recapitulate in any detail what we brought under the notice of the Commissioners. For the most part they were the facts and arguments with which the Fellows of this College are familiar, with which they have defended the practice of vivisection for years from the assault of those who would abolish it. But there are a few points to which reference may perhaps be permitted on the present occasion. The arguments of our opponents are concisely two: (1) that vivisection is useless and (2) that it is immoral. With regard to the first it is surely a matter on which we have the greatest right to our opinion. The failure to get immediate results is not an argument against any methods of procedure, unless immediate results are the only things demanded. A knowledge of the fact that the blood circulates is of the greatest importance at the present day: the acquirement of this knowledge was greatly advanced by Harvey's experiments upon living animals. But it is in the last 30 years since the passing of the last Act that the most remarkable amount of evidence has been provided of the value of experiments upon living animals. The whole science of bacteriology to which we owe antiseptic surgery, antitoxin prophylaxis and treatment in the diseases both of man and animals, is impossible without operations and experiments upon living animals.

The second objection to the practice of vivisection—namely, that it is immoral—must be judged of by other criteria. Nobody can seriously believe that the medical profession advocates the practice for any other reason but that it supposes it to be of value to humanity and even to the higher divisons of the animal kingdom, or that any individual member of the profession employs it for mere amusement, or from the gratification of any feeling or passion. The profession advocates it ostensibly and actually because it believes that the apparent harm or apparent wrong which it carries with it is enormously overshadowed by the benefit which accrues to the human race in general. The physician's duty is to do all in his power to save life and alleviate suffering among his fellow creatures, and he reasonably thinks that the sacrifice of life and comfort to a relatively small number of the lower animals is not too high a price to pay for such a consummation. For centuries animals have been killed for food, slaughtered in battle, maimed for sport, or kept in captivity for the mere pleasure or convenience of man. Our contention is that the justification for the pain or suffering we cause—often infinitesimally slight—is quite as complete as that of those who eat meat, amuse themselves by fishing and shooting, or take up arms to defend their country. But without arguing this further I should like again to refer to a point which is, I think, often overlooked by those who imagine that the medical man who can assist at experiments on living animals must have a heart of stone, and must be little better, or even worse, than the members of the brute creation on which he operates. The medical man has before him as part of his daily life numbers of human beings, it may be his dear friends or relatives, suffering the incapacity, pain, or weariness of illnesses, often prolonged

over weeks and months. Is it surprising if he feels something more for them than he does for the lower animals which are submitted to vivisectional experiments? Count all the animals that are the subjects of experiments, perhaps mere punctures in the skin, or feeding with distasteful morsels. What are they compared with the hundreds of thousands of human creatures who suffer death and linger in painful illnesses which nothing but very continued patient observation and research of nature by way of experiment is ever likely to prevent or to alleviate? There is no fear to my mind of the profession being brutalised even by witnessing vivisectional experiments, much less by the mere knowledge that such experiments have been performed, or by acquaintance with the results that have been obtained from them. It will be many, many years before the physical infirmities of the human race will be diminished to such a point that no room is left for the exercise of sympathy and humane sentiment on the part of the medical profession. Had some of our opponents more knowledge of the enormously difficult problems presented by disease, could they picture to themselves the thousands, nay millions, of sufferers upon the face of the earth, one cannot help thinking that they also would be converted to the view that the alleviation of all this suffering and the prolongation of life did indeed justify the sacrifice of animal life which the profession thinks necessary.

The consideration of the question of the value of experiment and research leads one to think on the one hand of the enormous progress which has been made in medicine in the last few years; on the other, of the large measure of our ignorance of natural phenomena in relation to disease and its treatment or control. The great triumph of the last 30 years is the discovery of the dependence of so much of human disease upon the growth of parasitic organisms. In the Harveian oration in 1881 Dr. A. W. Barclay, discussing the germ theory of surgical suppuration as put forward by Joseph Lister and the early experiments on splenic fever in animals, asked these questions:—

> Can it be that the specific fevers of the human race have each their own bacillus? May the exhaustion of the menstruum serve as an explanation of their termination in individual cases; and the loss of reproductive powers be the cause of the termination of an epidemic? May we hope in each of them some day to inoculate a mild form of the disease which will preserve the individual from a more severe attack?

In the following year was announced the discovery of the tubercle bacillus by Koch, and this was followed at no long intervals by other discoveries which very nearly supplied the affirmative answer to Dr. Barclay's first question. And although there remain many infectious diseases of which no specific organism can as yet be shown certainly to be the cause, still the resemblance between them and those in which an organism is recognised is so close that the discovery of an organism may be reasonably expected. This expectation is justified by the fact that there is progress, although it is slow. Only some five years ago the remarkable disease, sleeping sickness, after a comparatively short period of scientific and skilled research, has been discovered to be the result of infection by a protozoon, the trypanosoma, and not only that but the exact method by which infection is conveyed—namely, by the bite of a dipterous insect, *Glossina palpalis*—has been clearly shown. The association of the new organisms, discovered by Colonel Leishman, known commonly as Leishman-Donovan bodies, with a tropical disease, kala-azar, in which splenic enlargement is associated with anæmia, is another remarkable achievement of the last few years; and, finally, within still more recent times this branch of pathology claims another triumph in the discovery by Schaudinn of an organism in the blood and secretions of patients suffering from that terrible scourge of humanity, syphilis. Even if our results were no faster than this, three new specific organisms in five years, it would be progress of a most satisfactory kind.

Intimately connected with this branch of inquiry, as to the ultimate cause of the specific fevers, is the question as to how they are contracted, and recent observations have shown that some diseases, believed to be contained in the air, or to be conveyed by the air, or by fomites, or through adherence to various solid bodies, are really transmitted by the bites of insects. These are malaria by various forms of anopheles, yellow fever by the stegomyia fasciata, sleeping sickness and trypanosomiasis by the glossina palpalis, plague by rats or rat fleas, typhoid fever by flies, and it has been suggested relapsing fever by bugs. In two of these instances at least the discovery has been followed by enormous benefit to various communities, not through the cure of the disease but through its prevention. Under skilled advice in various parts of the world the campaign against the malarial or yellow fever mosquito has been successfully pushed by the screening of sleeping apartments to prevent the entrance of the insect, by drainage of the water-logged areas of the soil, by protection of small collections of water from the entrance of the insect to lay eggs, and by destruction of the larvæ when accessible. It is remarkable what a change this new discovery necessitates in our conceptions of the etiology of some of these diseases and even in the names. Marsh miasms are no longer the agents in the production of the disease; marsh fevers and paludism may still remain as names for the complaint, but *malaria*, derived from the Italian *mala aria* and perpetuated in the names of the plasmodium malariæ and hæmamœba malariæ, is obviously now a misnomer.

Another fact of recent date is that whereas the organisms of infectious diseases were thought to be quite the lowest forms of vegetable life, and chiefly the schizomycetes or fission-fungi, an increasing number of diseases are shown to be due to the entrance into, and proliferation within, the body of definitely animal forms or protozoa, which in some cases go through definite stages of growth, with sexually differentiated forms and a definite sexual method of reproduction. These protozoa are the malarial organism, the trypanosoma of sleeping sickness, the Leishman-Donovan bodies of kala-azar, the amœba of dysentery, and, finally, there are good grounds for believing that the spirochæta pallida of syphilis and the spirochæta Obermeieri of relapsing fever are only forms of trypanosoma. While so much interest centres about the specific diseases we must not lose sight of the fact that myriads of small ailments, and not a few fatal forms of disease, are due to the pyogenic organisms. The uncomfortable lesions known as boils, small abscesses, catarrhs, and the hundred and one forms of petty inflammation are the troubles which take off so much from the enjoyment of life and are due to the omnipresence of these pyogenic organisms; while deeper abscesses, erysipelas, pyæmia, and septicæmia represent the results of a high degree of virulence in the organisms insufficiently combated by the resistive systems of the body.

In any address concerned with the memory of Harvey the problems concerning the circulation of the blood must, of course, hold a foremost place; and there are some subjects which have recently engaged the attention of clinical physicians to which reference may properly be made. One is the nature of the heart's beat; another is the structure of the blood; a third is the condition of the arterial tension or pressure. All who have read Harvey's works will remember the passage in which he states his sensations on exposing the mammalian heart.

> When I first gave my mind to vivisections, as a means of discovering the motions and uses of the heart and sought to discover these from actual inspection, and not from the writings of others, I found the task so truly arduous, so full of difficulties, that I was almost tempted to think with Frascatorius that the motion of the heart was only to be comprehended by God. For I could neither rightly perceive at first when the systole and when the diastole took place, nor when and where dilatation and contraction occurred, by reason of the rapidity of the motion, which in many animals is accomplished in the twinkling of an eye, coming and going like a flash of lightning, so that the systole presented itself to me now from this point, now from that: the diastole the same: and then everything was reversed, the motions occurring, as it seemed, variously and confusedly together. My mind was therefore greatly unsettled, nor did I know what I should myself conclude, nor what believe from others.

But "at length by using greater and daily diligence, having frequent recourse to vivisections," he was enabled to recognise certain fundamental facts in the cycle of the heart's contractions. He observed that the movement which corresponded to the impulse was one of systole and not of diastole, that there was an alternate contraction of the two auricles and of the two ventricles,

> the motion of the auricles preceding, that of the heart itself following: the motion appearing to begin from the auricles and to extend to the ventricles.

Further, he noted that in the dying organ the ventricles failed before the auricles.

> The heart, therefore, ceased to pulsate sooner than the auricles, so that the auricles have been said to outlive it, the left ventricle ceasing to pulsate first of all; then its auricle; next the right ventricle; and finally all the other parts being at rest and dead as Galen long since observed, the right auricle still continues to beat, life, therefore, appears to linger longest in the right auricle.

His further observations upon the development of the chick and upon the human embryo showed the precedence of the auricle—that the auricle, indeed, as he puts it—"Both lives before the heart and dies after it."

The dependence of the ventricle upon the auricle under normal conditions and the occasional entire independence of the ventricular beat have acquired recently considerable clinical importance in connexion with the phenomena or phenomenon known under the rather undesirable term "heart-block." The movements of the auricle during life have always been difficult to investigate directly; and even in the cardiographic tracing the elevation which is attributed to the auricular beat is obviously obtained only by a transmission of movement through the mass of the heart or ventricle; the contraction of the auricle, however, may produce a wave in the jugular vein, and a tracing taken from the skin over that vessel may thus give a safe indication both in respect of time and of force of the contraction which is taking place in that part of the heart. Numerous observations of synchronous tracings from the jugular vein, the apex of the heart, and the radial pulse, with which the names of Wenckebach and of Dr. Mackenzie of Burnley are associated, have shown that while in health the auricle and ventricle contract in succession, in certain circumstances the ventricle may beat one-half as many times as the auricle, or only one-third as often; or even that the two contractions may hold no constant relation to one another at all. Gaskell showed experimentally by dividing the auriculo-ventricular ring so as to leave only a small portion of muscle connecting the ventricle to the auricle that the transmission of the auricular beat to the ventricle might be prevented, and cases of disease have occurred in which the ventricular beats have been less than those of the auricle, in which, therefore, presumably only every other auricular contraction had been transmitted to the ventricle and in which post mortem there have been found gummata or fibroid lesions involving the auriculo-ventricular ring so as to act virtually in the same way as Gaskell's incisions, leaving only a narrow bridge by which the wave of contractions could pass from the walls of one cavity to those of the other.

It is believed that normally the transmission of this wave is by means of the bundle of fibres, which, passing from the muscular fibres of the right auricle, dividing and running down each side of the septum of the ventricles, and ending partly in the musculi papillares, is known as the auriculo-ventricular bundle of His, and in some cases of the kind this bundle appears to have been involved. For some time has been recognised a group of cases in which a very slow pulse of 35 or 40 in the minute has been associated with attacks of faintness, giddiness, or actual convulsions; and these cases have been described as Stokes-Adams disease. Probably all, or most of them are cases where the infrequent radial pulse is due to a ventricle contracting only half as often as the auricle, and where the consequent inadequate supply of blood to the brain gives rise to the striking cerebral symptoms. But this does not exhaust the interest and importance of the subject of cardiac contractions studied from this point of view—i.e., the comparison of the time relations of the auricular and ventricular beats, as shown by radial and jugular tracings. For it appears that, whereas in health the stimulus to contraction starts in the muscular fibre at the mouth of the large veins and spreads through the auricle and ventricle, in certain circumstances the ventricle may contract independently of the auricle and may continue this improper performance for long periods of time, though not without as a rule inconvenience, irregularity, or feebleness of the beat. Dr. Mackenzie has made interesting observations on the action of digitalis upon the heart and it is obvious that there is a large field for research into the action of other drugs upon the contraction of the chambers of the heart. We may hope that useful results will accrue from these studies by which our treatment of this group of diseases may be materially improved.

The last few years have witnessed a remarkable increase in our knowledge of the corpuscular elements of the blood. The recognition of the circulation in Harvey's time must have been greatly impeded by the fact that the arteries and veins contained blood of different colour, and the great discoverer himself did not succeed in clearing up this difficulty. Indeed, neither in his time nor for many years afterwards does the cause of the colour of the blood seem to have been known, though Lower in 1669 recognised that the change of colour was due to air in the lungs. On the 200th anniversary of Harvey's birthday Dr. Andrew Duncan delivered in Edinburgh an oration "De laudibus Gulielmi Harvei," and speaking of the blood he says:

> About this fluid, from which indeed the immortal Harvey has deserved and derived the highest honour, many things still remain to be searched out: among others, the cause of the red colour is still unrevealed.

And again he says, "Hanc igitur questionem proponere liceat: unde color sanguinis?" The solid elements of the blood are now known to us and the chemical constitution and physiological value of the hæmoglobin, which is their important constituent. But while a generation ago we knew little more than that the blood contains red cells or corpuscles, blood-discs or erythrocytes, and white cells, colourless cells or leucocytes; we are now able to recognise as the result of improved methods of staining, which are added to every year, that the leucocytes are of several varieties and that these varieties hold a definite numerical relation to each other in the normal blood but that in disease the numerical proportions vary in more or less definite ways, dependent in many cases no doubt upon the varying conditions of the bone-marrow, but in other cases at present entirely unexplained. The coarser methods of estimating the relative number of corpuscles have given place to more accurate measures and the enumeration of corpuscles, both red and white, has proved to be of much value, even when the deviations from the normal are but slight, in various cases of infective disorder, whether local or general. In addition, much useful information has been derived from investigation into the specific gravity of the blood and its rate of coagulation, its viscosity, the degree of its alkalinity, and other facts as to the chemical constitution, both of the plasma and of the corpuscles, of which last the curious and interesting cases of methæmoglobinæmia and sulph-hæmoglobinæmia are examples.

The subject of blood pressure is also one upon which much valuable work has been done, since instruments have been devised both for demonstrating and recording the movements of the artery which constitute the pulse. Wilkinson King had employed levers to show the movement of pulsations in veins; and Carl Vierordt applied the same principle to the arteries and constructed a sphygmograph in which, by a complicated system of leverage, a tracing was made upon the cylinder of a kymographion. But the weight and friction were too great to allow a true record of the pulsations.

The sphygmograph of Marey is free from these defects and is portable and has given us tracings with which we are all familiar; but in spite of much good work done with it, it has never won a position of confidence with the profession in general. Its own defect, that in its first form it only indicated but did not measure arterial pressure, received attention at the hands of two distinguished Fellows of this College, Sir John Burdon Sanderson and Dr. Mahomed, and the additions made by the latter to Marey's instrument did certainly very nearly meet the difficulty; and the estimate of the pressure combined with the outline of the tracing gave information which was often of great importance. I know it is heresy to say anything which would cast a doubt upon our forefathers' knowledge of the variations in the pulse, but I cannot help thinking that there are conditions of the pulse which could not then be appreciated as they are desired to be in the present day. And I am convinced that there is no method by which the student can so quickly acquire a tactus eruditus as by a constant comparison of his sensations with the readings of a properly constructed sphygmograph. In the present day it will always be desirable when a record has to be made to go somewhat farther than touch can go. The final appeal must be to instruments: for the undulations and character of the collapse to the sphygmograph, for the actual tension to one of the numerous instruments recently invented or modified by Oliver, Hill and Barnard, and Gibson in Great Britain, Erlanger, Riva Rocci, and others abroad, by which either directly by contact with the radial pulse or indirectly by pressure of a band upon the brachial artery, the pressure is measured by a mercurial manometer. Even till quite recently improvements have been made in these instruments, especially with the object of differentiating between the variations of blood pressure which take place within the compass of a single beat—namely, the blood pressure at the time of the ventricular contraction (or systolic pressure) and that at the time of the ventricular relaxation (or diastolic pressure), the latter of which is the more difficult to estimate.

This appeal to instruments is no real reflection upon the skill of our forefathers. Science and the acquisition of knowledge necessitate an increase in the capacity of our senses. The sense of sight, already apparently the best trained, and commanding the greatest amount of

detail, was improved by the use of lenses many years ago, and Malpighi saw the blood moving in the capillaries in 1661, thus confirming Harvey's deductions as to the circulation. What the microscope has done for vision should be possible in the case of the other senses. And yet how little has been accomplished. The stethoscope is no magnifier, but only a means of conveniently stretching our ears into places they cannot easily reach, and the microphone has not been found to be of great value in medicine. The senses of taste and smell may be supplemented by an entirely different procedure —that of chemistry—and thus happily it is no longer the duty of the physician to taste the urine in cases of suspected diabetes. But failing this help he who is defective in either of these faculties, and there are many such, may have to rely upon the assistance of some more gifted colleague. We should welcome every addition to our resources for increasing or supplementing our receptive faculties, such as the sphygmographs and sphygmomanometers are intended to do. The subject of blood pressure, to which these instruments are auxiliary, opens up a large field of clinical and pathological research; much is known, but still much has to be learned on these various points—viz., the rise of arterial tension in later life, its relation to renal affections, its relation to the internal secretions of the ductless glands, such as the thyroid and the suprarenal, the influence of the arterial tension itself in the production of symptoms and of disease, and many others.

Amongst the experimental work which has been done recently under the auspices of this College none perhaps has been more interesting, of greater value, or more in accordance with the spirit of the man whom we commemorate to-day than those researches which were laid before us in the Croonian lectures of 1906 by Professor Ernest H. Starling. His subject was the chemical relations of the functions of the body; and among the striking facts that he brought forward was this—namely, that the secretion of the pancreas is caused not so much by nervous influence as formerly believed, as by the chemical action induced by the entry of the chyme into the first part of the duodenum. Thus the acid chyme entering into the duodenum causes the production from the mucous membrane of a chemical substance—secretin; this secretin is absorbed and carried by the blood-vessels to the pancreas, which it stimulates to produce the pancreatic juice. Similar chemical reactions take place in other parts of the alimentary canal, and as Professor Starling remarks:—

> We see that, from the entry of the food into the stomach until its passage through the ileo-cæcal valve, there is a continuous chain of chemical reflexes, and that the process in any section of the alimentary canal calls forth the activity of the digestive apparatus in the immediately following section.

All these results have been arrived at only after a long series of experiments; not of course only by Professor Starling, but by others, of whom Professor Pawlow, to whom the Baly Medal was awarded by this College in 1905, has been perhaps the most prolific and most original. It is, I am sure, a subject for sincere congratulation that the College has felt itself justified in awarding in the present year the same medal "in memoriam Gulielim Baly, M.D.," to one of its own Fellows, Professor Starling, as having been "deemed to have most distinguished himself in the science of physiology, especially in the two years immediately preceding the award."

I cannot turn from this subject without referring to the fourth of Professor Starling's Croonian lectures—that one in which he showed, as demonstrated by ingeniously conducted experiments, that the growth and development of the mammary glands was dependent not on nervous influences but upon the absorption of chemical substances emanating from the fœtus. The reference to these facts will no doubt suggest to many of those present that the Royal College of Physicians itself, not only in the perpetuation of this Harveian oration but also in its annual lectureships and in its award every one, two, or three years of certain prizes, directly stimulates research, much of which must be by way of experiment, so as to carry out fully the wishes expressed by Harvey, the founder of this address. It is true that the subjects of recent Lumleian lectures have been largely based on clinical results and do not often suggest the employment of much experiment, but the Goulstonian lectureship has been more fruitful in work of this kind. The Croonian lectures "on one or more subjects in anatomy, physiology, and pathology, with a view to the prevention, control, and cure of diseases," have constantly been illustrated by important experiments, of which the lectures already mentioned by Professor Starling and those by Dr. W. H. R. Rivers "On the Action of Drugs on Fatigue" are good illustrations. In both of these were brought before us most laborious, painstaking, and cleverly devised experiments from which valuable conclusions could be derived. The Oliver-Sharpey lecture was endowed in memory of the late Dr. Sharpey with the intention to promote physiological research by observation and experiment on man himself and to encourage the application of physical knowledge to the prevention and cure of disease and the prolongation of life; the Horace Dobell lecture is given with a view to encourage research into the ultimate origin, evolution, and the life-history of bacilli or other pathogenic micro-organisms; the Baly medal is awarded to "the person who shall be deemed to have most distinguished himself in the science of physiology," and it is quite certain that few at the present time will be held to have taken a leading place in this science who have not engaged in experimental research; the Moxon medal is awarded to the person who should be deemed to have most distinguished himself by observation and research in clinical medicine; and the Parkes-Weber prize is awarded for the best essay on the subject of tuberculosis; in both of which subjects experiment is possible. Lastly, the Bisset Hawkins memorial medal is a stimulus to experiment, though in a department of which Harvey and his contemporaries probably had but a faint conception—namely, that of sanitary science.

I cannot pretend that I have exhausted, scarcely indeed have I commenced, the enumeration of the advances in medicine and medical physiology of recent times. To two more at least I must refer, and they stand both in that group of results which are more welcome to the lay mind—namely, the immediately practical results of treatment. The earliest outcome of bacteriology, before bacteriology as a science was formulated, when only it became certainly known that micro-organisms were a cause of disease, was the improvement in surgical practice which, initiated by our great countryman Lord Lister, has led up to the present theory and practice of asepsis in surgery. To the possibility thus attained of operating with a minimum of risk of infection is due the advance which the last few years have seen in this branch of the Ars Medicinæ.

The other advance on the therapeutical side is intimately connected with the subject of prevention and immunity. One might say that the history of it goes back to the time of the inoculation of small-pox two centuries ago—that crude method, yet scientific up to a certain point, of preventing a great evil by substituting a smaller one for it. Then came the far-reaching discovery of Edward Jenner, that the pustular disease of the udders of cattle, the *cow-pox*, when communicated, as it often was, accidentally to men or women in the course of milking, protected these men or women from subsequent infection with small-pox. Hence came vaccination as a preventive of one of the most loathsome diseases suffered by man; transmissible, as shown by Jenner himself, from man to man, so that an active virus was continually produced and reproduced sufficient to cause in successive cases an immunity to the graver disease without itself running riot or exceeding, unless from accidental circumstances, its proper functions.

So for almost a century the matter stood. Vaccination for the prevention of small-pox remained an isolated method, the saviour probably of thousands of lives, the preserver of millions of comely faces, undergoing no material alteration, except in detail as to the preservation of the lymph and as to the source of the supply which is now the calf's abdomen instead of the child's arm, unchallenged so far as small-pox is concerned by any other method of immunising or fortifying the body against this infection. So one may suppose it will remain until the organism of small-pox is discovered. For it is again on the discovery of, and researches on, micro-organisms that the development of methods of prevention and treatment has had to depend. The virus of small-pox and of cow-pox, and they are probably identical, lent itself, as it were, almost unasked for the purpose of immunisation without any question of organisms. Progress only became possible in other diseases when the virus or toxin could be obtained almost as desired from the associated and causative bacteria. Koch announced the discovery of the tubercle bacillus in 1882. In 1891 the attempt was being made in all parts of the world to cure pulmonary tuberculosis by the use of toxins derived from these bacilli. That the hopes entertained of this treatment were not realised is no reflection upon the experimental method itself. Work on

similar lines has led up to the enormously practical results, taken altogether, of diphtheria antitoxin, of tetanus antitoxin, of inoculations of serum for the prevention of plague and of typhoid fever, and of the later opsonic methods. Disappointments there have been, and there will be more. The subject is full of difficulties and very much, of course, remains to be learned. There are diseases of which the organisms have not been discovered; there are organisms from which vaccines cannot be prepared; there are vaccines and serums which have not cured the disease for which they were made. No better illustration perhaps could be given of the modern use of experimentation to search out the secrets of nature and to apply them to the well-being of the community than the history just briefly outlined, and still in the making, of treatment and prevention by antitoxic serum and vaccines.

I have spent thus much time in considering some of the modern results of experimental research in medicine, as a small part only of the immense progress which has been thereby accomplished. I had in my mind to call attention to the reverse of the medal, and to suggest how much remains to be done. It is perhaps a thankless task; perhaps an unwarrantable expenditure of time; and yet one cannot help thinking what a labour of Hercules—I had almost said a labour of Sisyphus—it must prove to be to stamp out the infectious diseases from off the face of the earth, as we are hopefully trying to do. Of the diseases of which we know the micro-organisms, few can we cure, few can we prevent or exterminate. Influenza, a scourge 50 or 60 years ago, yielded up the secrets of its existence almost directly it reappeared in a bacteriological age, but in the 15 years that have passed since then we have made no advance. Influenza goes its own way, breaks out in scattered epidemics from time to time, without obvious reason or obvious cause, attacks some individuals over and over again, spares others entirely, invades the different organs in the most erratic manner, and defies all our efforts to control it. Consider also two other infective diseases, of which in recent years the organisms have been clearly isolated—plague and sleeping sickness, the latter extending over tracts of Africa formerly free from it, the former killing its thousands in the week in India and holding its own year after year. We may, of course, admit that science has not a free hand here; that ignorance, indifference, prejudice, as well as religious, political, racial, and financial difficulties have to be overcome in order to make any material progress in such an enormous task as it must in either case prove.

The more one thinks of these problems the more one sees that the solution lies in prevention rather than cure: prevention on a large scale, and therefore prevention by the State, with the assistance of, or in spite of, the public. Small-pox has been stamped out of the German army by efficient compulsory vaccination; hydrophobia has been stamped out of the British Isles by the efficient measures of the Local Government Board; malaria and yellow fever are being controlled by public measures of sanitation and prevention. In the last three cases it must be observed that the agent of transmission is an animal—dog or insect—and that no moral considerations have yet been advanced as an objection to its ruthless destruction when it is known to be a *particeps criminis*.

Of many of these diseases, while much remains to be discovered, there is enough known to be of value in the preservation of human life. Our greatest daily paper recently pointed out that so much is now known with regard to the general behaviour of disease in communities, if not in individuals, that the results of these diseases can be predicted with absolute certainty, and that consequently public officials, if unhampered with petty local and private considerations, could undoubtedly control the course of events and save both life and public money. The exanthemata, however, remain mysteries. Very familiar with their clinical characteristics, we are wholly ignorant of their micro-organisms. Possibly the stain that will colour them has not been invented. Bacteriology has been largely indebted to aniline dyes, or as our last Harveian orator, Professor Osler, racily put it, "Sir William Perkin and the chemists made Koch possible," and it may be that another chemist has yet to be born before the secrets of all the infective diseases are revealed. To speculate as to what would be our position if we could eradicate all the known pathogenic micro-organisms is perhaps to enter upon a wild-goose chase. Even if we regard the human pathogenic organisms of disease as being comparatively limited, it is almost inconceivable that we can stamp them out, while with great probability in proportion as these organisms are got rid of they will be replaced by others derived either from animals or from other sources of which we now have little cognisance. But we are too far off from the extirpation of existing infective agents to make the question of their successors a matter of practical politics. The good results of the last 60 years since sanitary medicine first became the subject of State care justify, and demand indeed, continued action on the same principles.

But the cure and prevention of infective diseases are only a part of the task which lies before the profession. Pathology is not all inflammation, even if inflammation is mostly micro-organism. There remain degenerations and new growths, and mechanical troubles, and congenital deformities. The field for research is enormous, the necessity for research is patent, and even if the number of workers who can conduct research on the highest lines is limited, whether on social, financial, or moral considerations, there can be no doubt that the profession as a body will continue to support actively the maxim contained in Harvey's exhortation to search and study out the secrets of nature by way of experiment.

One of the duties which remain to me as Harveian orator is the "commemoration of all the benefactors of the said College." As years flow on—and it is now two centuries and a half since this injunction was conveyed to the Fellows of the College—the literal fulfilment of this requirement presents increasing difficulties. Benefactors, small and great, of one kind and another have been many. From an enumeration in detail of all the benefactors, with the good they conferred upon the College, I may perhaps be excused, and a somewhat abridged list will, I hope, be accepted in discharge of this duty. Harvey himself has been one of the greatest of them. In his lifetime he made an addition to the building of the College at his own expense, consisting of a great parlour, a meeting room, and a library above, and he furnished the library with books and the museum with objects of curiosity and a variety of surgical instruments. Shortly before his death he conveyed to the College his estate at Burmarsh. But Harvey was not the first benefactor. Linacre, who was the real founder of the College, inaugurated as it was in 1518, held the first meeting in his own private house, which he subsequently made over to the College. Caius, who was President of the College from 1555 to 1561 and from 1562 to 1571, first instituted the College Annals and revised its statutes. The names of numerous benefactors are perpetuated in the various lectureships, medals, and prizes associated with this College, to some of which I have already, in another connexion, referred. An account of these is given in the list of Fellows, Members, Extra-licentiates, and Licentiates of the Royal College of Physicians published annually, and I need do little more than enumerate them. The Lumleian lecture in Surgery, or the chirurgical lecture, was founded by Dr. Caldwell and Lord Lumley in 1581. The conditions have been altered and three lectures are delivered annually in the subjects of which surgery is, as a rule, but little represented. A special interest attaches to this lectureship in that Harvey himself was the fourth holder of the office, gave his first lecture in 1616, and continued to lecture to within a few years of his death. If, as is believed, he employed this lecture for the propagation of his views on the circulation, the surgical characteristics must have been early lost.

Dr. Goulston, in 1632, left money for the payment of a lecturer who was to be one of the four youngest Doctors in Physic of the said College and the lecture was to be delivered over a dead body if it could be procured. This provision no longer holds, but the lecturer is still one of the four youngest Fellows. Dr. William Croone was a Fellow of the College whose desire that a lecture should be founded at this College was only 22 years after his death—namely, in 1706—actually provided for by the will of his widow. The property which she left for this purpose was largely increased in value in 1886. Nearly a century and a half passed before any similar benefactions were received; but during the last 60 years the College has benefited on nearly a dozen occasions by the receipt of bequests of sums of money either to found lectureships or prizes or medals. The bequests are from the widow of Dr. W. Wood Bradshaw, from Dr. Gavin Milroy, from the widow of Dr. Thomas FitzPatrick to found lectureships, from Dr. Swiney to found a prize, and from Miss Johnstone of Bath to found a scholarship in memory of Dr. Samuel George Jenks. Lectures, prizes, and medals

have been founded by Dr. George Oliver in memory of Professor William Sharpey, by Dr. Dyster in memory of Dr. William Baly, by Captain Williams in memory of Dr. Bisset Hawkins, and by Dr. Horace Dobell. The Murchison scholarship and the Moxon medal are the outcome of subscriptions for the purpose of perpetuating the memory of those two distinguished Fellows of this College.

But there are many others who have at different times bequeathed sums of money or presented objects of professional or antiquarian interest to the College, one of the last of whom is the late Mrs. Begley who left as a legacy the sum of £500 free of duty "to show her admiration of the faculty and gratitude to some of its members during her widowhood." Many of our presidents have been mindful of their affection for the College during their term of office, and among these the Fellows can gratefully count, Mr. President, yourself. And in one sense all the presidents of this College have been its benefactors, in the time and thought and care they have successively devoted, often in the midst of an exacting professional career, to the interests of the College.

To this commemoration of benefactors it is my duty to add the exhortation to others to imitate them. Harvey does not specify to whom his exhortation is to be addressed: it is "others" who are invited to contribute their endeavours for the advancement of the Society according to the example of these benefactors. Before now a Harveian orator has read the word "benefactors" in a less material spirit than runs through what I have been recording, and has taken them to be those Fellows who have most contributed to the store of knowledge and industry in medical science and labour in the welfare of humanity, or have by their lives given examples to be followed by their successors. Whichever view be taken, Harvey cries out from the remote past to us to imitate their good deeds.

It remains only to exhort the Fellows and the Members of this College to continue in mutual love and affection among themselves, without which neither the dignity of the College can be preserved nor yet particular men receive that benefit by their admission into the College which else they might expect, ever remembering that Concordiâ res parvae crescunt, discordiâ magnæ dilabuntur. As others have said, this should be an easy task. We are drawn together not only by our association in the welfare of this College but by the necessity of a greater knowledge of nature in all its intimate workings, by our unanimous desire to prevent and cure disease, to alleviate pain and prolong life, by the sympathy we all have for suffering humanity. Rival views may indeed be held, and all physicians do not practise in the same way; but these are the differences which must exist while human minds are as they are, and they do not prevent that mutual respect and affection for one another which Harvey was so desirous to see perpetuated. We can at the present time faithfully say that the feeling is not confined to the Fellows or Members of this College but is extended to other members of our great profession, to the sister College with whom we have had during more than 20 years the most friendly and intimate scientific and educational relations.

The motto of this College should never be forgotten:—

ὁ βίος βραχύς ἡ δε τέχνη μακρή.

Wagner in *Faust* says:—

"The search of knowledge is a weary one and life how short!
How often have the heart and brain, o'ertasked,
Shrunk back despairing from enquiries vain!
Oh! with what difficulty are the means
Acquired; that lead us to the springs of knowledge!
And when the path is found, ere we have trod
Half the long way—poor wretches, we must die!"

Life is too short for disagreements, and by united action alone can we effect what it is our life's work to accomplish.

"Quam felix, et quanta foret respublica, cives
Si cunctos unus conciliasset amor!"

AT the adjourned discussion on Pneumonia of the Medical Section of the Royal Society of Medicine to be held on Nov. 5th Dr. W. J. Hadley will resume the discussion by giving the experience of the London Hospital with regard to the disease, and will be followed by speakers from the other metropolitan hospitals.

STUDIES IN CONNEXION WITH THERAPEUTIC IMMUNISATION.

BY SIR A. E. WRIGHT, M.D. DUB., F.R.S.;

S. R. DOUGLAS, M.R.C.S. ENG., L.R.C.P. LOND., CAPTAIN, I.M.S. (RETIRED);

J. FREEMAN, M.D. OXON., RADCLIFFE TRAVELLING FELLOW (OXON.);

J. H. WELLS, M.B., B.S. LOND., M.R.C.S. ENG.;

ALEXANDER FLEMING, M.R.C.S. ENG.;

And other Members of the Staff of the Department for Therapeutic Immunisation, St. Mary's Hospital, London, W.

WE have in the course of the past three years in connexion with the treatment of out-patients in the Department for Therapeutic Immunisation at St. Mary's Hospital, of in-patients in the Hospital, and of patients outside the hospital, had opportunity to investigate a number of points in connexion with the diagnosis of bacterial diseases and their treatment by methods of immunisation. We reproduce below a selection of some of the more interesting of our records.

We have divided our paper into two parts. In Part I. we treat first of certain unregarded points in connexion with the immunisation curves which are obtained by bacterial inoculations. We then deal with auto-inoculations, showing that these may come under observation in connexion with the first beginnings of tuberculous infection, and that they are a regular accompaniment of the hectic fever of advanced phthisis. We then illustrate in connexion with a case of gonococcal arthritis that there is a very intimate relation between auto-inoculation and auto-immunisation, on the one hand, and the clinical symptoms of the patient on the other. We then take up the question of generalised bacterial infections and show that spontaneous auto-inoculations and immunising responses are a characteristic feature in anthrax septicæmia as seen in rabbits. From this we pass on to deal with human streptococcal and staphylococcal septicæmias, setting out here all the work which we have done with a view to eliciting immunising responses by the agency of vaccine therapy in those cases where spontaneous immunising responses make default. Finally, we set forth some of the more interesting of the records which we have obtained in the course of systematic study of auto-inoculations in connexion with localised bacterial infections. We here consider, first, the effect of massage and of active muscular movements affecting the focus of infection; then the effect of operative interference with such foci; and lastly, the effect of active and passive hyperæmia affecting these foci. The 39 records which we bring forward in illustration of these various points are all submitted to the reader in the form of charts which are in each case provided with a brief explanatory commentary.

In Part II. we bring forward evidence to show that we have in the induction of an auto-inoculation, when this is preceded and followed up by a series of measurements of the opsonic index, a method which can be turned to account for the resolution of some of the diagnostic and therapeutic problems which present themselves for solution in connexion with every localised infection which is not accessible to direct bacteriological examination. Of the 31 records which we bring forward in illustration of the problems which can be resolved by this method one is, by way of illustration, submitted in graphic form. The remainder are for convenience of study arranged in a table.

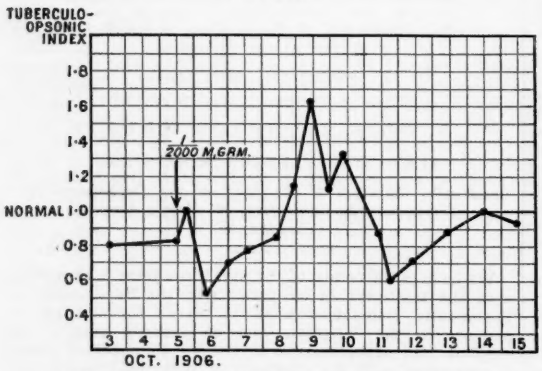
PART I.

Chart 1 exhibits in addition to the negative and positive phases, which are already familiar features in connexion with every immunisation curve, two minor features which are not without a certain interest. The first of these is the upward movement of the curve which follows directly upon inoculation anticipating the negative phase.[1] The

[1] This feature is again exhibited in Charts 23, 26, 34, 35, 37, and 40, and again in the Table under serial numbers 6, 10, 13, 17, 27, 28, and 29.

I.—*Charts illustrating Points in connexion with the Immunising Reaction which is obtained in Response to the Inoculation of Bacterial Vaccines.*

CHART 1.



Owing to the fact that the quantum of dry tubercle powder in Koch's T. R. (tuberculin) was, owing to an unaccountable error on the makers' part, declared by them as 10 milligrammes in one cubic centimetre, when it was in reality, as they now inform me, only 2 milligrammes in one cubic centimetre, the dose here inoculated would in reality be only $_{10000}$th milligramme. A similar correction would, be it noted, be applicable to the doses of tuberculin as stated in this paper and in all my previous publications.—A. E. W.

second is the sinking away of the curve after the positive phase to a point below the original point of departure.[2]

The first of these features is of interest as explaining the immediate clinical improvement which not infrequently supervenes directly upon the inoculation of a bacterial vaccine. The second is of interest as explaining the fact that indices appreciably lower than those encountered in the untreated condition may be met with subsequent to the inoculation of vaccines. To be noted in connexion with the secondary ebb of the curve of immunisation is the fact that the point of lowest ebb has no sooner been reached than—and this is seen also in Charts 3 and 6—the tide spontaneously turns again.

Chart 2 exhibits the results obtained by measuring the agglutinating power of a guinea-pig which was subjected to successive inoculations of a vaccine consisting of a culture of the glanders' bacillus which had been sterilised by heating to 60° C. It will be seen that we have here on record in connexion with the agglutinating power of the blood a succession of negative and positive phases exactly comparable to the succession of negative and positive phases which are registered where, in connexion with bacterial inoculations, successive measurements of the opsonic or, as the case may be, of the bactericidal power of the blood are undertaken. It is thus clear that the course of the immunising reaction can be followed by measurements of the agglutinating power of the blood.

Chart 3 refers to a laboratory boy who was the subject of acne and who was inoculated by us with staphylococcus vaccine. To be noted in connexion with the chart is (*a*) the fact that the first two doses of vaccine gave a cumulative effect in the direction of the positive phase; (*b*) the fact that there supervened upon the very high spring-tide which was evoked by the third inoculation a very pronounced secondary ebb; and (*c*) the fact that the progressive improvement which was achieved in association with the positive phases which are here on record was, in the period of the secondary ebb, succeeded by a temporary aggravation of the patient's condition.

II.—*Charts showing Auto-inoculation Effects in connexion with the First Beginnings of Tuberculous Infection.*

The two following charts which refer to past workers in this laboratory appear to us to possess quite exceptional interest in connexion with the detection of the first beginnings of tuberculous infection. Before considering them we may premise the following: (*a*) In connexion with the measurements of the tuberculo-opsonic index which are carried out in this laboratory, as a matter of daily routine, we employ as controls the sera of from two to four laboratory workers, with respect to whom we feel confident that they are not the subjects of any tuberculous infection. Both the laboratory workers whose charts are here in question came under this description. (*b*) In the ordinary case where the blood of a patient is in question we work out the opsonic index by dividing the phagocytic count which we obtain with his serum by the mean of all the phagocytic counts which we obtain with the control sera. In the case of the laboratory workers here in question the index was in each case obtained by dividing the phagocytic count corresponding to the particular worker's serum by the mean of the phagocytic counts of himself and his fellow workers.

Chart 4, which refers to the first of the two cases which are in question, shows that during the ten weeks which are covered by the first two-thirds of the chart the tuberculo opsonic index of our fellow worker's blood never ranged below 0·9 or above 1·1, except on a single occasion (in August) when a reading of 1·25 was obtained. In the middle of October, for the first time, a serious discrepancy made itself manifest between this worker's blood and the other control bloods. With a view to probing this matter to the bottom we took samples of blood from each of the workers in the laboratory—then some 10 in number—and tested each individual worker's serum against the pooled serum of all the workers. It immediately emerged that the serum of the particular worker whose chart is here in question showed the abnormally high tuberculo-opsonic index which signalises an immunising response to a tuberculous inoculation or auto-inoculation. An acute febrile attack now supervened. It was diagnosed as typical influenza. Our fellow worker, who was a man of splendid physique, however, lost flesh very rapidly, developed a cyanotic hue, and complained of a certain amount of tenderness in connexion with the lymphatic glands of the neck. In association with these symptoms a tuberculo-opsonic reading of 1·75 was obtained, and 24 hours after a reading of 0·9. It was now ascertained that the patient had more than ten years before undergone an extirpation operation for tuberculous glands in the supra-clavicular region. We take it, in view of all these circumstances and of the subsequent events, that we were here face to face with what we are persuaded must be a comparatively common event—to wit, a tuberculous septicæmia.

Of quite special interest is the subsequent history of this case. The patient made a rapid convalescence, recovered the weight that he had lost, and returned to work in the laboratory. His tuberculo-opsonic index none the less showed the fluctuations delineated in the last quarter of the chart. To us it seemed clear that we had here evidence of tuberculous infection. To others the patient's appearance made such infection quite incredible. To believe here in tuberculous infection, and to believe in it upon the evidence of a fluctuating opsonic index alone might, they held, quite well be fruit of a mind diseased. Our fellow worker none the less elected to exchange the late hours and the physical strain of laboratory work for an out-door life. He reported to us before long that the fluctuation of his tuberculo-opsonic index had not been without significance. He had developed tuberculous epididymitis.

Chart 5 refers to a laboratory worker who took the place of the worker who was last in question. Here we have:—in the last week of November and the first week in December, 9 successive tuberculo-opsonic readings which varied between 0·95 and 1·05; in the last three weeks of December, a series of 12 readings, among which there are a quite unusual number of low readings and among these one significantly low reading; in the first fortnight of January, again, nine readings, of which eight fall below the normal, one again being significantly below the normal; then, in the last week in January, a fluctuation which has all the characters of an inoculation or auto-inoculation curve—i.e., a negative phase, a positive phase, and a secondary ebb; and, lastly, throughout the rest of the chart a very significant series of large oscillations in which very low readings are interspersed with isolated high readings.

Of special import in connexion with this chart are the following facts. Early in the last week in January—i.e., in the week in which the first really significant fluctuation was registered—a lymphatic gland in the submaxillary region

[2] This feature is again exhibited in Charts 3, 5, 6, 19, 22, 26, and 36, and in the Table under serial numbers 14 and 28.

CHART 2.

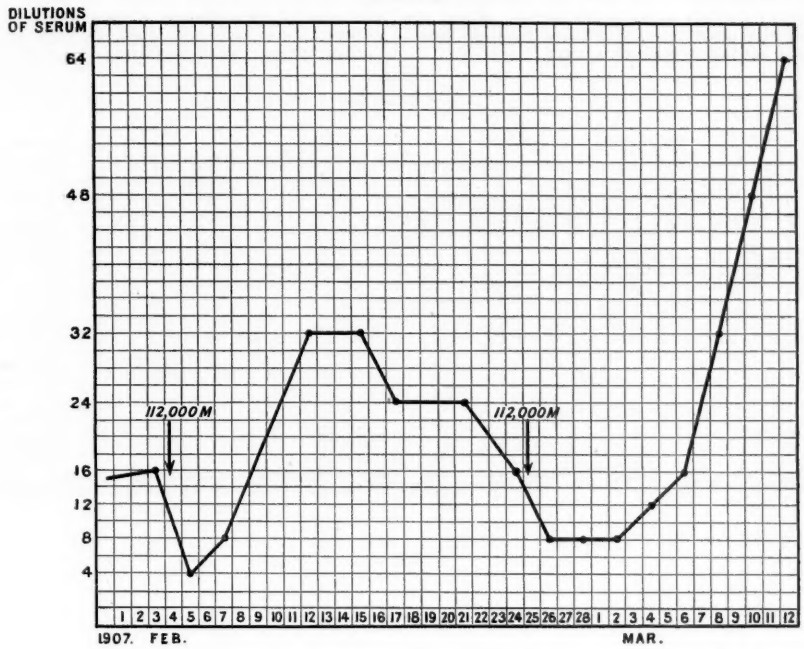
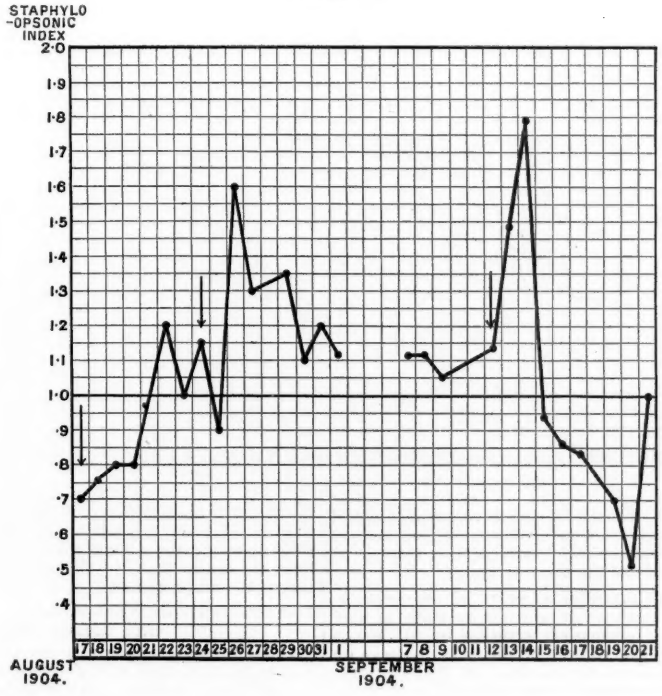


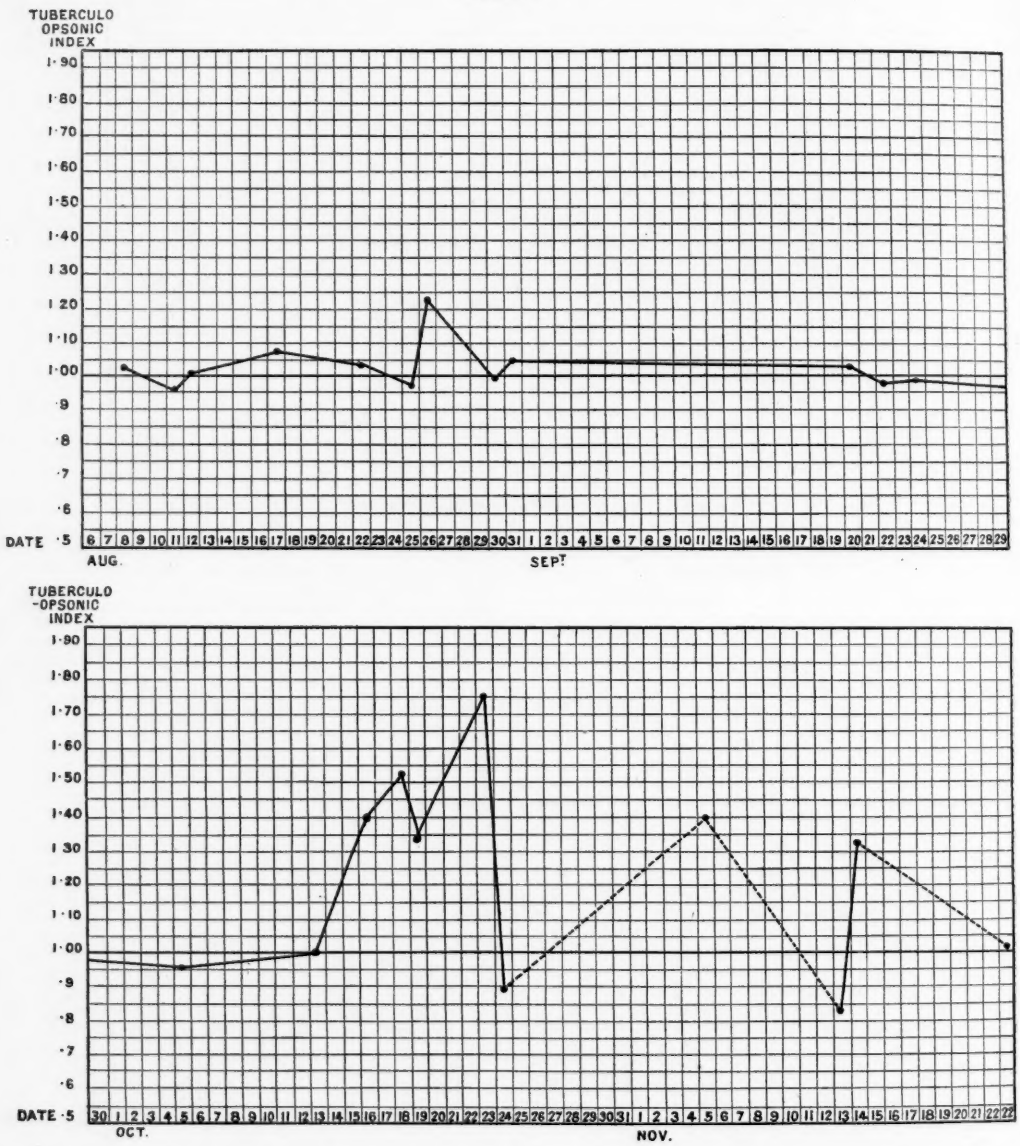
CHART 3.



began to swell and to give a little trouble. After a few days this trouble subsided and the gland could no longer be felt. Early in the second week of February one of the physicians made a careful examination of our fellow worker's chest. His examination gave only inconclusive results. About the date on which the chart here terminates tubercle bacilli were detected in our fellow-worker's sputum.

Freeman, who undertook the blood examinations, did not enter the wards, while Mr. K. Lees, who undertook the record of the symptoms, was engaged exclusively in clinical work. The clinical record was obtained in the form of the curve here charted by assigning a daily quota of marks to the patient in accordance with a scheme previously agreed upon. Very convincing, when considered in the light of these facts,

CHART 4.



III.—*Chart showing in connexion with a case of Gonococcal Arthritis, Auto-inoculation and Immunising Response, and the Correspondence which exists between these Phenomena and the Clinical Events.*

Chart 6.—This chart furnishes a record of the measurements of the gono-opsonic index which were made in connexion with a case of gonococcal arthritis in St. Mary's Hospital. Along with the records of the blood testings we have entered upon the chart also a record of the daily state of the patient. The two records were obtained by different observers working without any intercommunication. Dr. J. is, we think, the testimony of the chart to the close interrelation between the content of the blood in protective substances and the clinical state of the patient. (Compare here the events that are put on record in connexion with Charts 18 and 19 and 29.)

IV.—*Charts showing Auto-inoculation Effects in connexion with Advanced Phthisis.*

Chart 7 has reference to a case of phthisis. The patient was in the last stage of the disease and was affected with a typical hectic pyrexia. His sputum, which had been frequently examined, was characterised by the association of

numerous staphylococci with the tubercle bacillus. In the upper division of the chart we have the temperature curve; in the middle division the record of the observations which were made on his tuberculo-opsonic power; and in the lowest division of the chart the record of the changes in his staphylo-opsonic power. It will be seen that the rise and fall of the temperature here coincides with a rise and fall in the tuberculo-opsonic power and that it corresponds also in a general way with a fluctuation in the staphylo-opsonic power.

Chart 8.—This chart has reference to another patient also in the last stage of phthisis. This patient's sputum had been continuously free from staphylococcus, while it contained on each occasion in addition to tubercle bacilli

CHART 5.

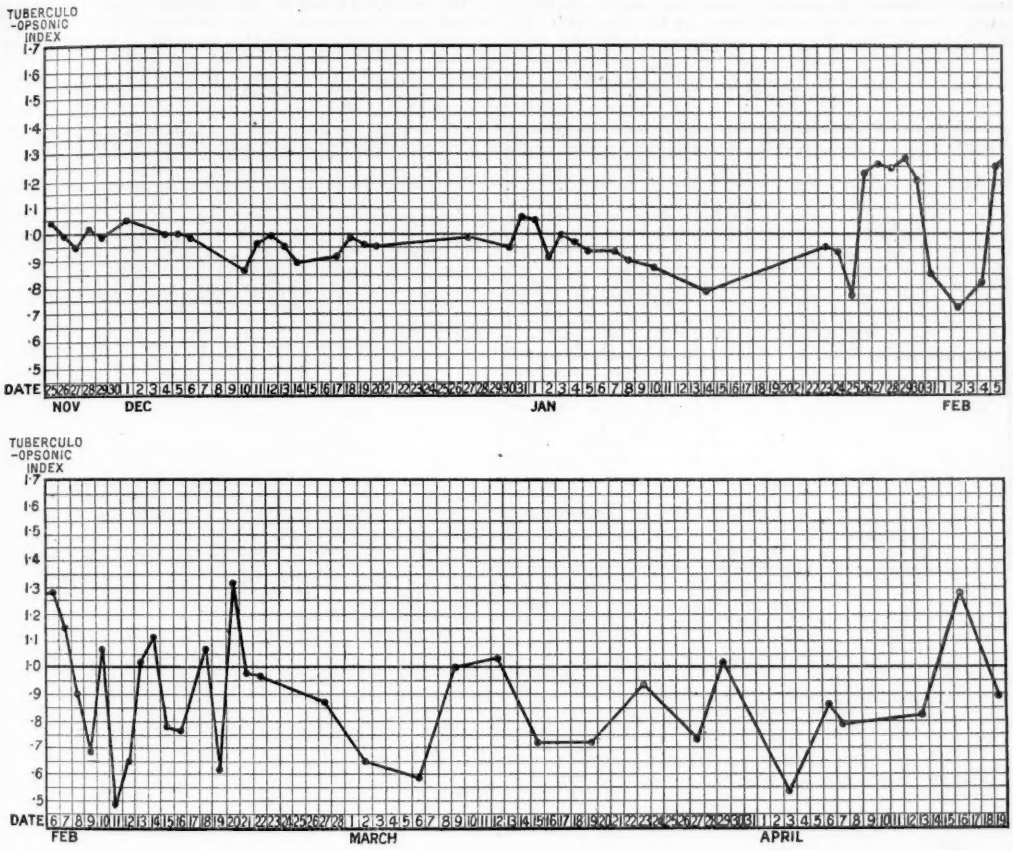
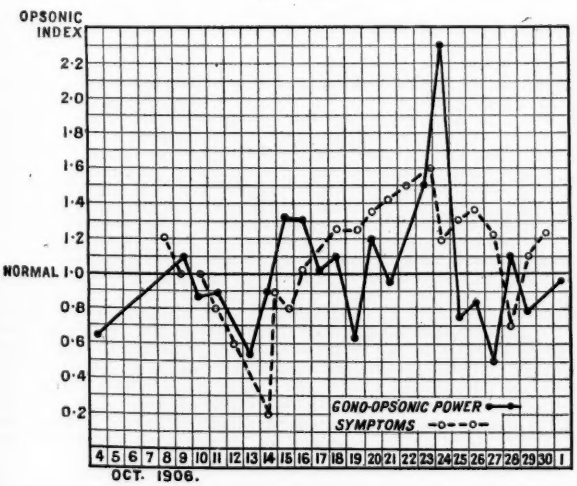


CHART 6.



innumerable pneumococci. It will be seen that while the tuberculo- and pneumo-opsonic power of the patient's blood rose and fell with his temperature, his staphylo-opsonic power remained unaffected. It is interesting to note that in an earlier period of his disease—when, however, the hectic temperature had already persisted for over six months—there was no daily variation in his tuberculo-opsonic power, while his pneumo-opsonic power rose and fell with the diurnal variation of the temperature.

V.—*Charts showing Auto-inoculation Effects in connexion with Generalised Infections.*

Charts 9 and 10 relate to two rabbits which were inoculated in each case with half of an agar culture of living anthrax bacilli. There are registered on the chart in each case the fluctuations of the anthraco-opsonic power[3] of the

[3] The technique which was employed for the estimation of the anthraco-opsonic power of these rabbits' blood differed from the ordinary technique (*a*) in the respect that a suspension of spores was here substituted for the customary bacterial suspension; and (*b*) in the respect that the opsonic index was here arrived at not by comparison with the blood of a normal animal, but by comparison with blood drawn off from the rabbits before the outset of the experiment, or with a blood which had been standardised against this.

blood in association with the temperature readings, which were taken in the rectum. The more important points which are brought out in the charts are the following :—

1. The animal organism is shown to be capable of making immunising responses even to such acute infections as were here in question.

2. The fluctuations of the body temperature are shown to correspond here in an astonishing manner with the fluctuations of the opsonic power of the blood.[4]

3. The generalisation that the bacteriotropic pressure in the focus of infection is normally lower than that in the circulating blood is here corroborated by the fact that the fluid drawn off from the site where the inoculation was made had in each case a smaller opsonic power than the circulating blood.

4. A comparison of Chart 9, where the machinery of immunisation shows sign of flagging at the close, with Chart 10, where the machinery of immunisation continues to respond in an active manner, shows that death in acute infectious disease is not always the result of a breakdown in the machinery of immunisation. It may also follow upon the breaking down of some other part of the physiological machinery. (*Vide* here Chart 15.)

VI.—*Charts showing (a) the Conditions which are met with in Man in Streptococcal and other Septicæmias, and (b) the Results which have been obtained in these Conditions by Recourse to Vaccine-therapy.*

The subjoined group of charts depict a type of septicæmia which would appear to differ fundamentally from the type depicted in Charts 9 and 10. A study of so much of the Charts 11, 12, 13, 15, and 16 as refers in each case to the untreated condition of the patient and of the whole of the Charts 14 and 17 shows that the spontaneous immunising responses which are so salient a feature in connexion with Charts 7 and 8 and 9 and 10 here make default. In view of this fact—and it is a fact which assuredly must stand in association with the long duration of all these septicæmias and the fatal character of streptococcal septicæmia—we

CHART 7.

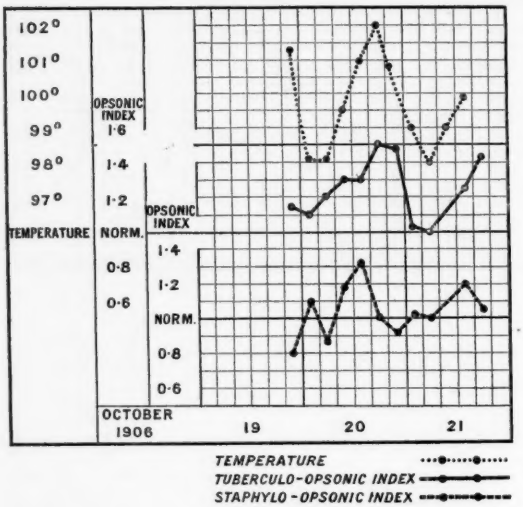


CHART 8.

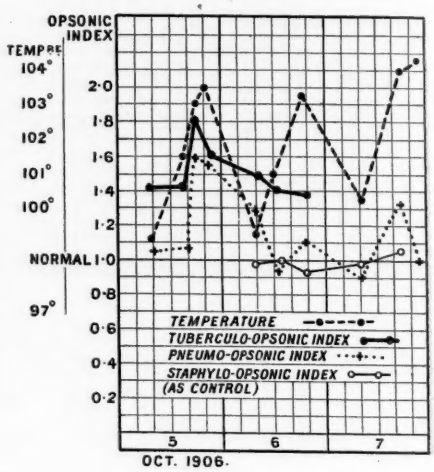
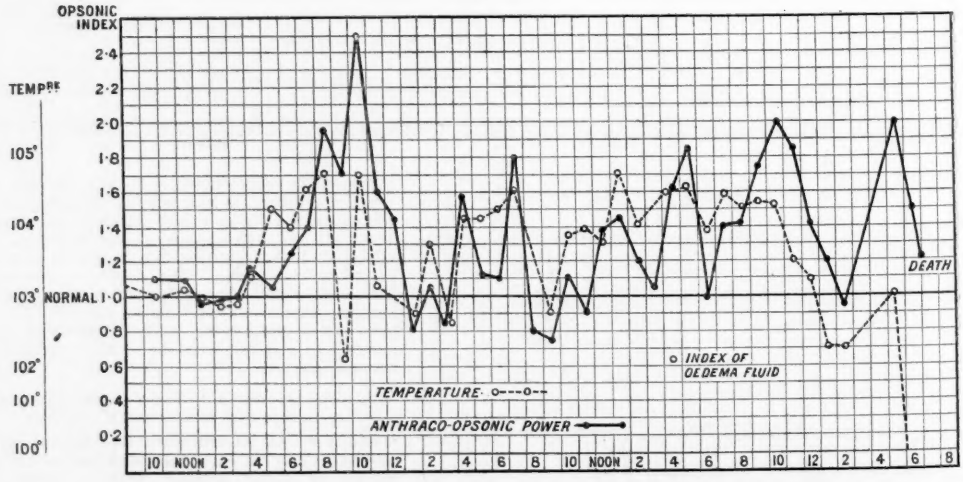


CHART 9.



[4] A quite similar correlation between temperature and immunising response is exhibited in Charts 7 and 8.

CHART 10.

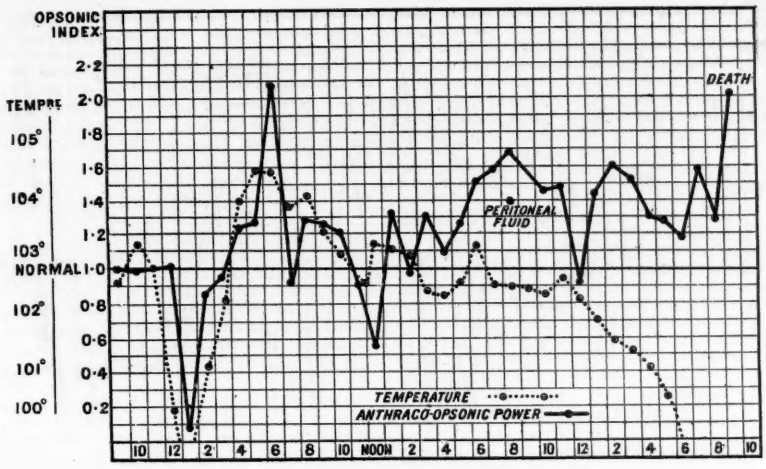


CHART 11.

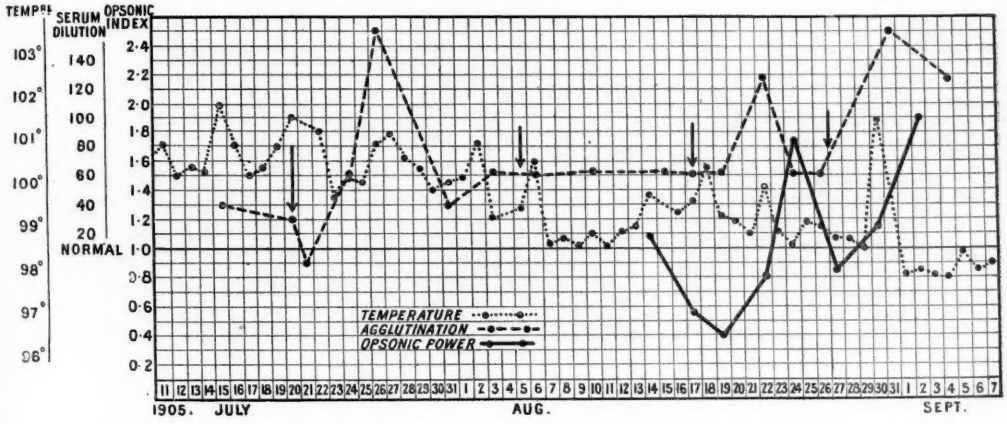


CHART 12.

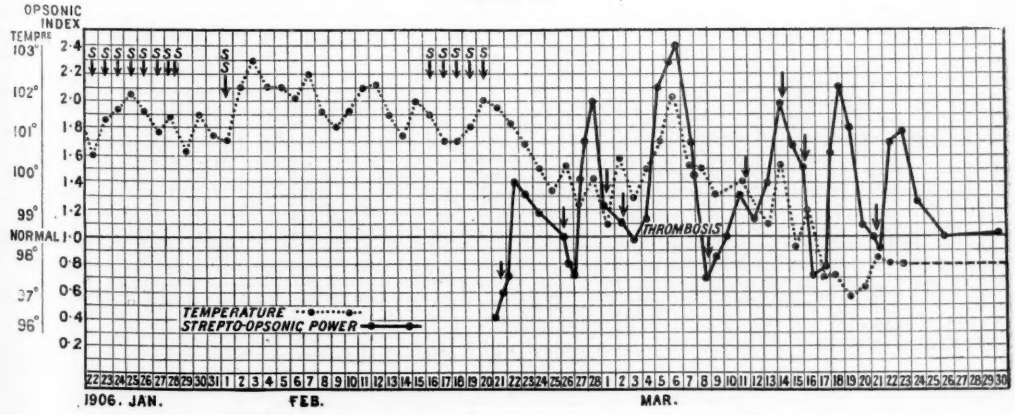


CHART 13.

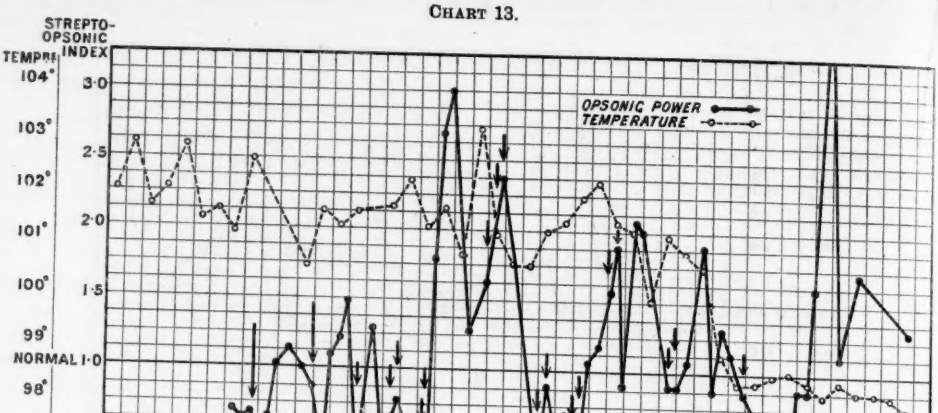


CHART 14.

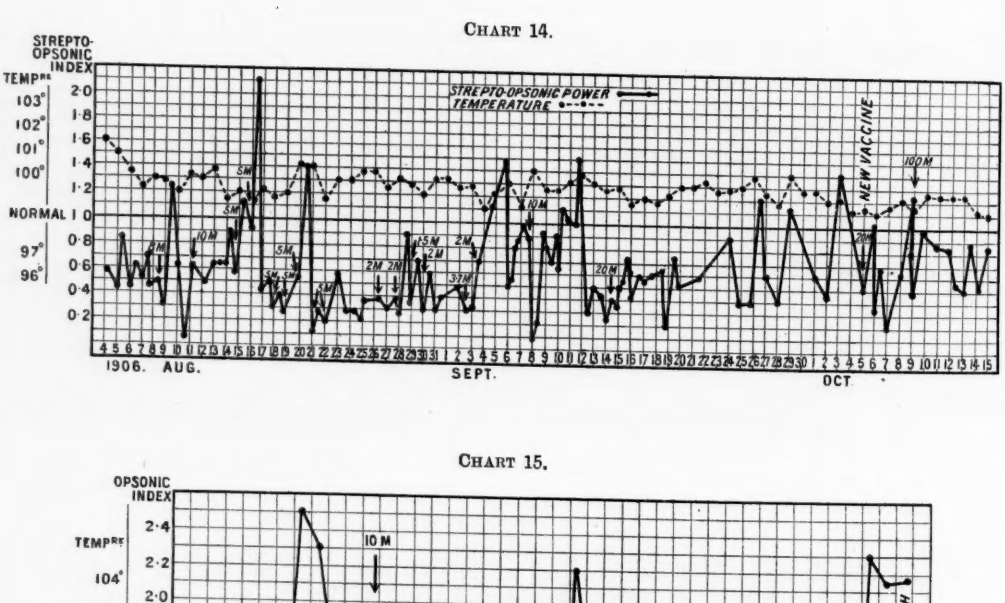
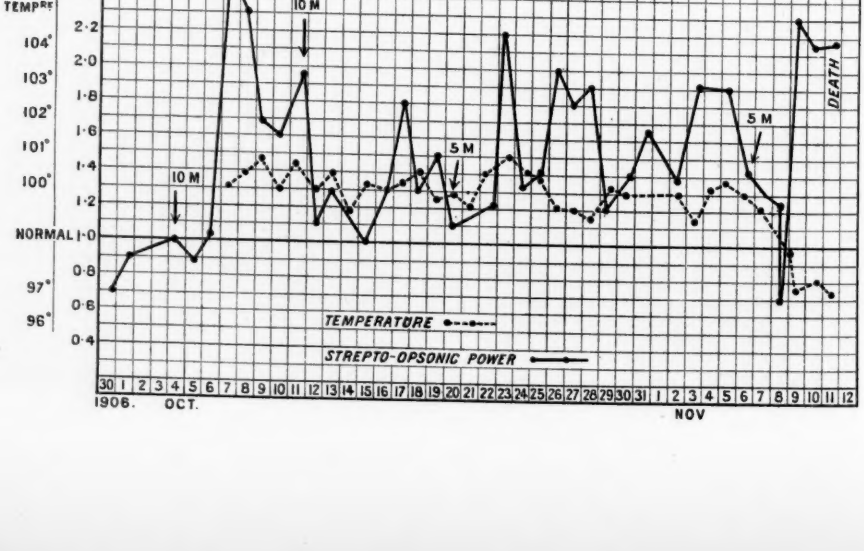


CHART 15.



made in each of the cases which are charted below a methodical attempt to evoke the required immunising responses by the subcutaneous inoculation of bacterial vaccines.

Chart 11 applies to a case of Malta fever which had been running the lingering course which is characteristic of so many cases of this disease. As is the rule in such lingering cases, the patient's serum was found to possess only a very moderate agglutinating power—agglutination effects being incompletely developed in all dilutions above 1 in 40. This being the situation of affairs, a series of inoculations of a vaccine made from a sterilised culture of the micrococcus Melitensis was undertaken, the effect of these being watched by blood examinations and temperature observations.[5]

In connexion with the first two inoculations the examination of the blood was confined to the measurement of the agglutinating power. In the case of the last two inoculations—when the difficulties in connexion with the opsonic technique as applied to Malta fever had been successfully overcome—examinations of the opsonic power were added. The chart shows that an increase of the bacteriotropic substances of the blood was obtained by vaccine-therapy and that this went hand-in-hand with a decline of the temperature—this last remaining permanently normal after the date at which the chart ends.

Interesting also is the fact that, as might have been expected, the temperature rises in the negative phase when the bacterial substances which have been injected are no doubt circulating in the blood.

Finally, it is to be noted that there is a general agreement between the rise and fall of the agglutinating power and the rise and fall of the opsonic power.

Chart 12.—The details of the case to which this chart applies have already been published in THE LANCET[6] by Sir James Barr and Dr. Blair Bell conjointly with one of ourselves. It will suffice in elucidation of the curve here published to rehearse the more interesting features of the case.

The patient, a young woman, was taken ill some three or four weeks before the date at which the chart commences with an acute sore-throat accompanied by high fever. In association with the condition in the throat an acute swelling developed in the side of the neck. In connexion with this the question of incision was considered. Before this could be carried out the temperature which had been very high and continuous became lower and remittent and the swelling rapidly disappeared. A cardiac murmur now developed and the case assumed all the characters of an infective endocarditis. Treatment by antistreptococcic serum was now resorted to by Sir James Barr and Dr. Blair Bell, and was persisted in daily on eight successive days as indicated on the chart, without any lowering of the temperature. After several attempts to obtain a culture from the blood had proved abortive a culture of streptococcus was on Feb. 12th obtained. Following upon this finding antistreptococcic serum was again resorted to by Sir James Barr and Dr. Blair Bell. On Feb. 21st, the day following the last of the second series of serum injections, two measurements of the patient's opsonic power were made with a culture of the streptococcus derived from the blood of Feb. 12th. It will be noted that in spite of the fact that large quantities of antistreptococcic serum had been administered the patient's opsonic index proved to be very low. Vaccine-therapy was now resorted to, a vaccine made from cultures of the patient's streptococcus being employed in doses of from 5,000,000 to 12,500,000. The favourable result of this treatment can be appreciated on noting in the chart how the inoculations were followed by very striking immunising responses and how in association with the increase in the opsonic power the temperature rapidly declined[7] until within little more than three weeks after the first inoculation it came down to, and remained permanently at, the normal level, the patient making an uninterrupted recovery without any subsequent relapse.

Chart 13.—The patient to whom Chart 13 applies was admitted to St. Mary's Hospital early in May, 1906, with phlegmonous abscesses and a high temperature. Soon after admission her condition became extremely critical, new abscesses developing in different parts of the body and her temperature ranging very high. Cultivations made from the blood remained sterile but streptococci were recovered in pure culture from the abscesses. The patient's strepto-opsonic power as tested with these cultures ranging between 0·6 and 0·7 it was decided to see whether anything could be done for the patient by the inoculation of a vaccine which had been prepared from her streptococcus. The effects which were obtained by this means and the relation in which the patient's temperature stood to the opsonic power of the blood can be followed upon the chart.

A study of the chart will suggest that the low opsonic power recorded on May 17th stood in relation with the high temperature of the 18th; that the rise of the opsonic power on the 20th stood in relation to the decline of the temperature on the 21st; that in a similar manner the low opsonic reading of the 22nd stood in relation to the rise of temperature of that day; again, that the rise of the opsonic power on the 29th to the lower temperature of the 30th; the low opsonic reading of the 31st to the higher temperature of June 1st; the high opsonic reading of June 1st to the decline of temperature on the next two days; the low opsonic readings of the 4th, 5th, and 6th to the rise of temperature of those days; the high opsonic readings of the 8th and 9th, with the lower temperature of the 10th; again, the low opsonic readings of the 11th and 12th, with the high temperature of those days; and, lastly, the high readings of the 13th and 14th, with the defervescence which took place on those days. And there is more than this. The record of the new abscesses which developed after the patient came under our observation shows that these developed on May 17th, 18th, 20th, 26th, 31st, and June 13th respectively. It will be seen on consulting the chart that May 17th, 18th, 26th, and 31st were all days on which low readings were obtained and that May 20th and June 13th were both days which followed immediately upon days when low opsonic readings were obtained. It would on general grounds seem to us very probable that days when the citadel of the blood is not firmly held against bacterial invasion would be likely to be days in which bacteria could be conveyed unharmed from place to place by the channel of the circulation.

We have only to add with respect to this case that after the defervescence of June 13th and 14th the temperature never rose again, the patient leaving hospital early in July in a very satisfactory condition.

Chart 14 refers to a patient, aged about 35 years, who was admitted to St. Mary's Hospital on July 31st, 1906, with symptoms of cerebral embolism, pyrexia, and a systolic murmur. The history which was obtained was to the effect that while engaged in her ordinary work 12 weeks previously the patient had been suddenly seized with facial paralysis and complete hemianæsthesia. A culture of streptococcus having been obtained from the blood and nine successive measurements of the patient's strepto-opsonic index having shown that she was not making any spontaneous immunising response, vaccine-therapy was resorted to. The vaccine was, of course, made from the patient's streptococcus. In spite of the fact that an almost lavish amount of labour was expended upon this case; in spite of the fact that we reached high and reached low to find an effective dose of our vaccine; in spite of the fact that we essayed with small doses frequently repeated and with large doses spaced far apart; in spite of the fact that we went over the ground a second time and made fresh cultures from the blood, recovering again a streptococcus, and prepared a new vaccine,—in spite of all this, and in spite of the fact that the patient was when we commenced relatively speaking strong and vigorous, all our efforts to elicit immunising responses were as good as unsuccessful, the opsonic power of the blood remaining almost continuously below the normal line. The clinical event was in conformity with this. The patient, becoming gradually weaker, went home, and died within a week after the date upon which our chart terminates.

When we compare this case and the case to whom Chart 13 refers, and when we remember that that patient, though enfeebled and almost moribund, made vigorous immunising response and recovered; while this patient, though comparatively vigorous and strong, made no such response and succumbed, the importance of immunising response cannot but be very forcibly suggested to us. The lesson that immunising response is an all-important factor in recovery will be seen to be the lesson which is taught by all our cases.

[5] It is to be noted that the temperatures which are recorded in this and the subsequent charts are in each case average temperatures representing the mean of all the observations which were made in the course of the 24 hours.

[6] THE LANCET, Feb. 23rd, 1907, p. 499.

[7] It is of incidental interest in connexion with this case that a thrombosis which developed in the left iliac vein in the course of the treatment, sending up the temperature in the manner shown in the chart, was very rapidly and effectually dissipated by the administration of large doses of citric acid as recommended by one of us. ("A Note on the Causation and Treatment of Thrombosis occurring in Connexion with Typhoid Fever," THE LANCET, Dec. 6th, 1902, p. 1631.)

Chart 15 refers to another case of streptococcal endocarditis. The patient, a man, aged over 50 years, had at the date at which the chart begins already undergone three months' continuous fever associated with progressive aortic mischief and cardiac dilatation. A culture of streptococcus was obtained from his blood and vaccine-therapy was embarked upon. The chart shows that the patient immediately responded with an increase in his opsonic power but that for a whole month no effect was produced upon his temperature. During that month the cardiac dilatation was making steady progress and towards the end it became clear that the cardiac muscle was on the point of giving out. Finally, and it would seem in association with the immunising response to the last inoculation, the temperature became, first, normal and, then, subnormal. At this point death stepped in and terminated the scene.

It would seem to us that the lesson of Chart 10—the lesson that death may supervene in bacterial infections independently of any breakdown in the machinery of immunisation—is here strikingly corroborated.

Chart 16 relates to a patient, aged 25 years, who was sent up to St. Mary's Hospital for inoculation treatment from Winchester Hospital. A culture of staphylococcus had there been obtained from her blood. She had a history of eight months' occasional pyrexia and of pulmonary infarction and cerebral embolism arising in connexion with obvious mitral disease. On Sept. 27th, 1906, the day after the patient had been admitted to St. Mary's Hospital, cultures were made from the blood with a negative result. None the less, in view of the bacteriological findings at Winchester Hospital, and the fact that her index was fluctuating to staphylococcus, it was thought well to inoculate with staphylococcic vaccine. On Oct. 17th she was injected with a small dose of the vaccine which we were employing in the treatment of ordinary staphylococcal infections. On Oct. 27th, during an exacerbation of her pyrexia, cultures were again made from the blood. These revealed the presence of a staphylococcus which possessed in several respects quite aberrant characters. A vaccine having been prepared from this staphylococcus the inoculations were resumed with the result that the patient's temperature soon became normal and remained permanently normal after the date at which the chart ends.

As will be seen on reference to the chart the inoculations elicited in this case on the whole quite satisfactory immunising responses, the patient's staphylo-opsonic index maintaining itself almost constantly above the normal line.

Chart 17.—The patient to whom this chart refers was a man, aged 30 years, who had many years before developed a mitral lesion after an attack of "rheumatic fever." Commencing insidiously with pyrexia and weakness the septicæmic attack which is here in question gradually unmasked itself as ulcerative endocarditis, the cardiac symptoms developing first in connexion with the mitral valve and afterwards involving the aortic valves. After repeated unsuccessful attempts a small diplococcal streptococcus was cultivated from the blood early in February. A vaccine having been prepared from this, inoculation treatment controlled by daily measurements of the opsonic index was embarked upon. It was soon recognised that the patient made no satisfactory immunising response to small doses and that larger doses produced constitutional disturbance associated with pronounced negative phases. None the less, after some three weeks' treatment, a certain amount of improvement made itself manifest and some slight hope was entertained for the patient. These hopes, however, proved illusory; immunising response to inoculation was conspicuous by its absence; and a steady downward tendency made itself manifest both in the opsonic power and in the patient's condition. Vaccine-therapy was accordingly abandoned and soon after the date at which the chart terminates the patient succumbed.

It is again very clearly brought out by the history of this case that where inoculation fails to evoke immunising response it is entirely useless.

VII.—*Charts illustrating the fact that Auto-inoculation Effects are obtained where Active or Passive Movements are undertaken in connexion with Localised Bacterial Infections.*

Chart 18 brings before the eye the result of the experiment which initiated our study of *induced auto-inoculations*. The chart relates to a case of gonococcal polyarthritis which was admitted to St. Mary's Hospital towards the end of October, 1905. As appears on the chart vaccine-therapy was here embarked upon, a dose of gonococcal vaccine corresponding to 50,000,000 gonococci being administered on Nov. 1st. Six days afterwards, when it was proposed to administer a second dose of vaccine, it was found that the patient's knee had been massaged on the previous evening. In connexion with this the patient complained that while the massage itself had not been painful he had suffered six hours afterwards from constitutional reaction and from an aggravation of all his joint troubles quite similar to that which he had experienced a few hours after the gonococcal vaccine had been inoculated. The massage had, he said, "played him up cruel." Dr. Freeman, immediately recognising that a negative phase effect due to massage might here be in question, thereupon desisted from his intended injection of vaccine, and took steps to investigate in a systematic manner the effects of massage. The chart very plainly tells the history of his experiment. It is of fundamental significance to note, in the first place, that in association with the ample immunising responses which are recorded upon the chart the condition of the patient's joints improved with rapid strides, and, in the second place, that although massage was confined to the knees and ankles such joints in the upper extremities as were affected improved *pari passu* with the joints in the lower extremities. The inference that this last result was attributable to therapeutic immunisation is borne out by the fact that quite similar effects on remote regions of the body come under observation in connexion with another method of therapeutic immunisation, to wit, with Bier's method of passive congestion. (*Vide* in connexion with this commentary to Chart 39.)

Chart 19 has reference to a case admitted to St. Mary's Hospital for recurrent arthritis of the right knee which had supervened upon a gonorrhœa contracted some 12 years previously. The patient's gono-opsonic index was tested on five occasions, readings of 1·8 to 2 being on these occasions obtained. Although this of itself afforded strong presumptive proof of gonococcal infection it was thought desirable before going further to make the diagnosis certain. With this view massage was prescribed. The operator who was employed was an enthusiast. After he had emptied the knee by his manipulations he expressed himself as satisfied that he had effected a cure. 14 hours later the left knee, which during the previous six months had been giving no trouble, began to swell and to become painful. This supervened in association with a fall in the gono-opsonic index and, we may presume, as a consequence of a dissemination of living gonococci by the channel of the blood. Within 24 hours the left ankle also began to be painful, and, during the three subsequent days, the swelling increased in both joints; then, coincidently with the rapid rise in the opsonic curve which is shown in the chart, the swelling in both joints rapidly decreased. On Dec. 29th, when both knees were quite free from effusion, the right knee was opened up with a view to the removal of synovial fringes which interfered with the movements of the joint. An auto-inoculation effect, similar to those which will be considered in a subsequent section of this paper, followed upon this operation.

Chart 20 has reference to a patient, aged 12 years, who was admitted to St. Mary's Hospital with an arthritis of the knee which was suspected to be of tuberculous origin. After the patient's tuberculo-opsonic power had been measured on two successive days, and had been found to be on each occasion normal, gentle massage was applied to the knee for half an hour. The result was to raise the boy's tuberculo-opsonic power from 1 to 1·5. About one month later, the knee having in the meanwhile been in plaster, gentle massage was again applied with a somewhat similar result. Treatment by tubercle vaccine was now embarked upon. The effect which was produced upon the patient's blood by the first two inoculations is shown in the chart.

Chart 21 has reference to a patient who came to us for treatment with enormous masses of glands on both sides of the neck and, further, glands in both groins. The patient had previously undergone six successive extirpation operations at the Middlesex Hospital. On one of these occasions the glands were microscopically examined and were pronounced to be tuberculous. After tuberculin treatment had been carried out by us for many months without appreciable improvement it was resolved to test the diagnosis by massaging the glands. With a view to this, after an interval of weeks, during which all treatment was suspended, the patient's tuberculo-opsonic power was measured on six successive occasions with the results shown in the chart.

CHART 16.

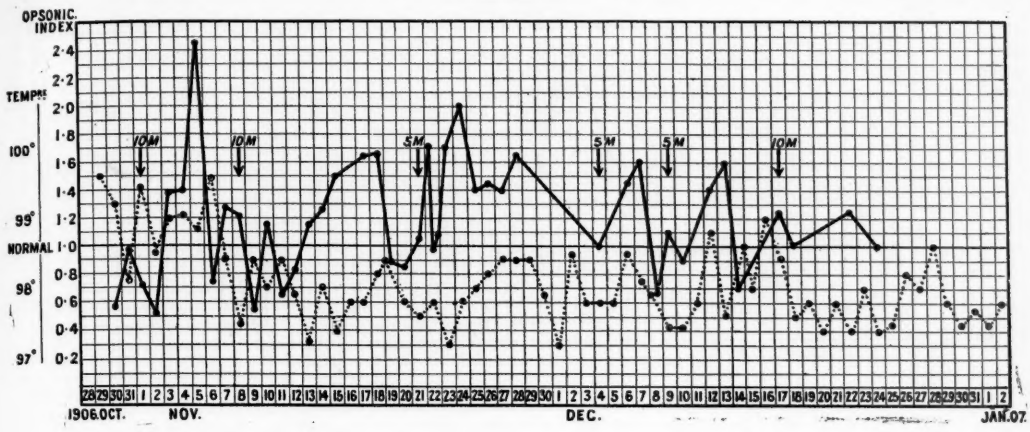


CHART 17.

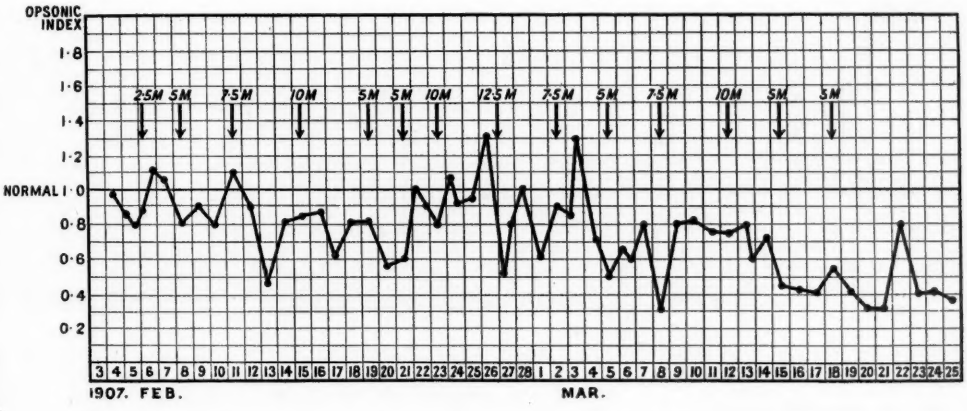


CHART 18.

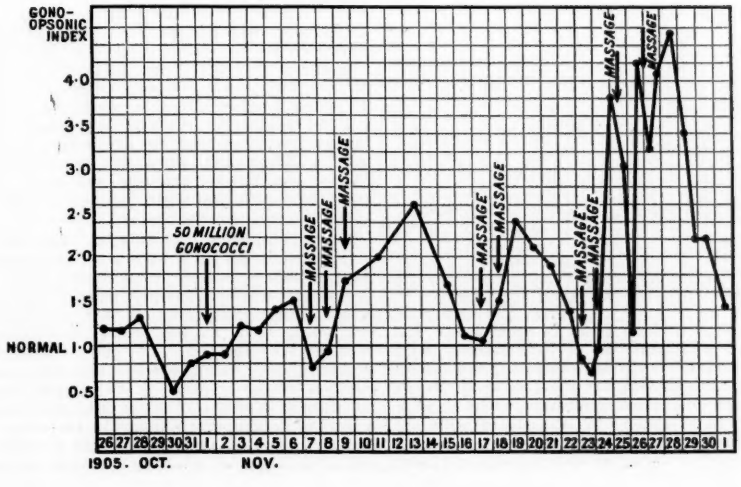


CHART 19.

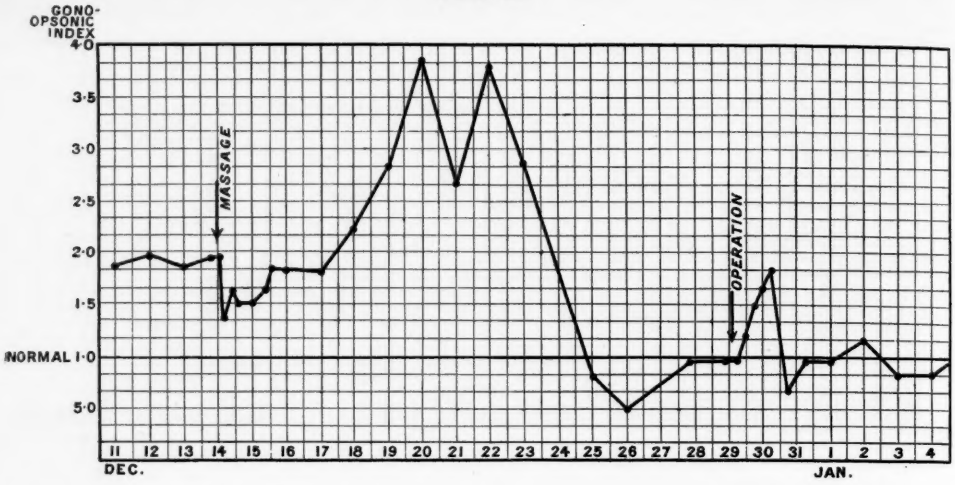
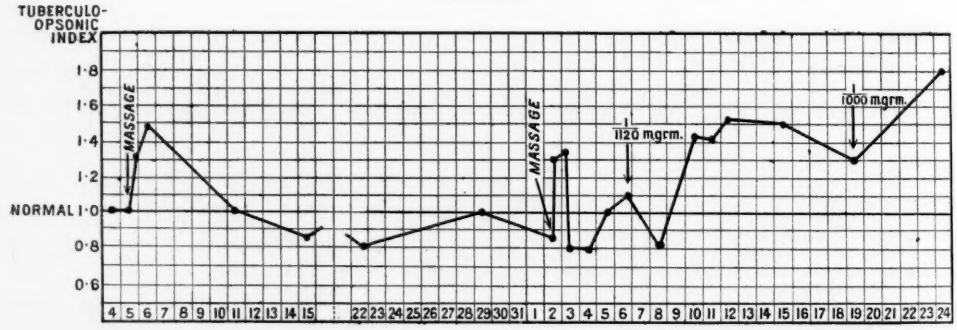


CHART 20.



The glands in the neck were then gently massaged. Three hours after this the patient's opsonic index had risen from 1 to 1·4, falling then by stages to 1·3, 1·22, 1·12, and, finally, 24 hours after the massage to 1 as at the outset. Encouraged by the positive result of this diagnostic experiment vaccine-therapy with tuberculin was persisted in with the result that a phenomenal improvement has now taken place in the patient's condition.

CHART 21.

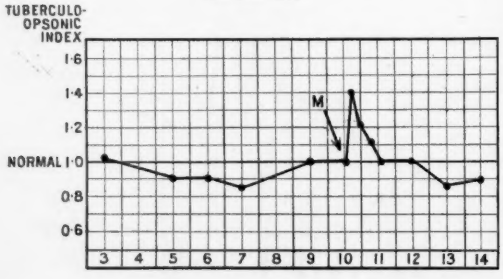
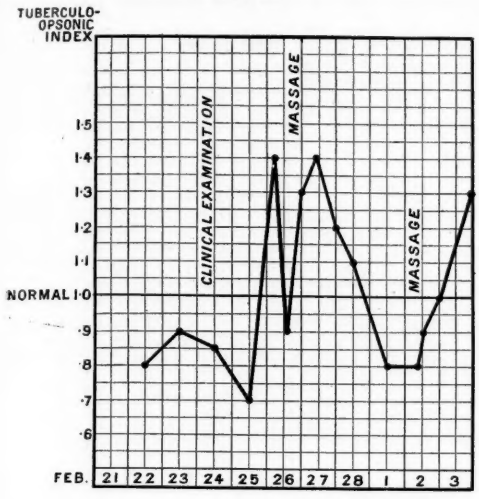


Chart 22.—The case to which Chart 22 applies was that of a young woman who came to us for treatment with enormous masses of glands entirely obliterating the outline of the jaw and chin. The patient was admitted to St. Mary's Hospital with a view to determining whether we had here to deal with tuberculous infection. In accordance with our programme, the patient previously to massage was to remain in bed undisturbed for four days, her tuberculo-opsonic index being examined daily. This programme was followed out for three days, blood being drawn off for testing on each morning. It, however, so happened on the afternoon of the third day that the visiting physician selected this patient for a practical clinical demonstration, and that he called upon each member of his class to palpate the patient's glands. The effect of this palpation stands out clearly to view in the chart in the negative phase of Feb. 25th and the positive phase of the morning of Feb. 26th. Quite unconscious of what had happened and was happening, our part of the programme was followed out, the patient's blood being drawn off for examination on Feb. 25th and again on the morning of Feb 26th. Immediately after this latter sample of blood had been drawn we proceeded to carry out massage. The effect produced by this massage is seen in the chart in the low reading of the afternoon blood of Feb. 26th and the positive phase and the secondary ebb which succeeded it. On March 2nd, when the blood had returned to its normal equilibrium, massage was again undertaken. In association with this there was again a marked fluctuation in the tuberculo-opsonic index.

Chart 23 relates to one of 70 or more cancer and sarcoma patients whom we have, with a view to the possible relief of some of their symptoms, treated with a vaccine made from that variety of staphylococcus which Doyen has brought into notice under the name of the *micrococcus neoformans*, attributing to it an etiological significance in connexion with tumour formation. The patient here in question was a woman, aged 34 years, who was the subject of an inoperable sarcoma of the upper jaw which projected through the unbroken skin of the cheek in the form of an orange. With a view to determining whether in this case anything could be hoped for from inoculations with a neoformans vaccine—and obviously such advantage cannot be hoped for unless

Doyen's microbe is present in the tumour—we here had recourse to massage and obtained the result which is exhibited in the curve. We would here insist, in passing, that there appears to be very little room to doubt, in view not only of experiments like the above but also in view of the fact that the neo-opsonic index of cancer

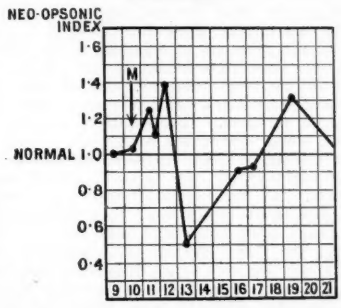
CHART 22.



(For further examples of the induction of auto-inoculation by massage and passive movements see Table under Serial Numbers 6, 7, 8, 9, 10, 13, 14, 15, 16, 18, 19, 20, 21, 22, 25, 26, and 27.)

Chart 24 relates to a youth who presented himself for treatment for a small sinus under the inner ankle of the right foot which refused to heal. The patient recounted that four and a half years previously he had pierced his foot with a

CHART 23.



sharp spicule of bone when he was digging into the ground a cartload of bones obtained from the butcher as manure. The puncture thus made healed up and had broken open again. When this process—sequence of healing over and breaking open again—had repeated itself several times the patient sought advice at St. Thomas's Hospital and St. Bartholomew's Hospital. He underwent in these hospitals three successive scraping operations. The foot had also

CHART 24.

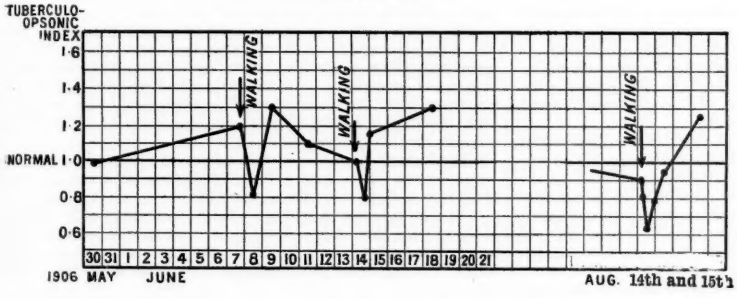


CHART 25.

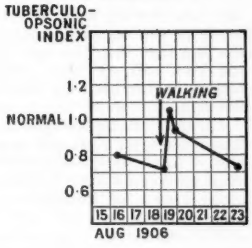


CHART 26.

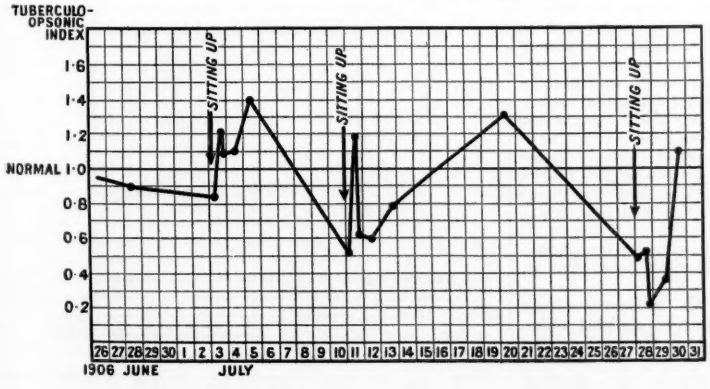
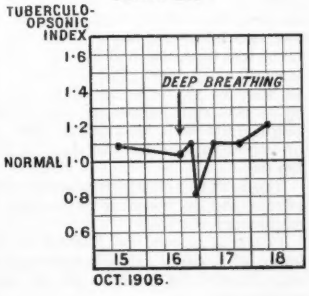


CHART 27.



patients is continually fluctuating, that the so-called micrococcus neoformans finds means to establish itself in a large majority of malignant tumours—the tumour forming in such case, no doubt, merely a *locus minimæ resistentiæ* to invasion by a microbe which may be constantly present on the surface of the body.

been put up in plaster and had been kept at rest upon a peg leg. The patient stated that he had not had his foot to the ground for 18 months. The patient's tuberculo opsonic index worked out as 1. He was instructed to return in ten days' time in order that his tuberculo-opsonic index might be tested before and after walking on the foot. We hoped by

this means to learn whether the presumably tuberculous focus of infection in his foot was extinct or aglow. Owing to a want of precision in our instructions the patient anticipated our wishes and discarded his peg leg when he had come within a short distance of the hospital and came hobbling into the laboratory. After withdrawing a sample of blood we set him to pace the hospital corridor for a matter of 20 minutes or more. Another sample of blood was then withdrawn and the patient resumed his peg leg. The readings which we obtained with these samples and with those obtained the next day and again two days after will be seen in the chart. They furnished to us presumptive evidence of the presence of tubercle in the foot. With a view to further testing the diagnosis the peg leg, which had in the meantime been resumed, was on June 14th again discarded and the patient was again set to pace the hospital corridor for 20 minutes. The results of the testings of the samples of blood withdrawn immediately before walking, immediately after walking, and—we think[8]—two to three hours after walking, and again three days later, are displayed in the chart. We see in the results confirmation of the diagnosis of tubercle in the foot. Our diagnosis thus made, vaccine-therapy with tuberculin was begun. Six weeks after, when the sinus had to all appearance completely healed, the peg leg was again discarded and the patient was set to walk the hospital corridor again for 45 minutes. Samples of blood were drawn off for examination immediately before walking, half an hour, two hours, four and three-quarter hours, ten hours, and again 21 hours after walking. The results as set forth in the chart admonished us to continue our inoculations. After the treatment had been continued for 7 months, and again 6 months later, further tests of the patient's progress were made. The tuberculo-opsonic readings which were obtained on these occasions will be found chronicled in the Table, under Serial Numbers 23 and 24. On both occasions the patient, who had long ago discarded his peg leg, undertook for the purpose of the test very active exercise (quick walking and cycling). The inference arrived at after the last testing—the inference, to wit, that the tubercle focus in the leg was extinct—is apparently confirmed by the fact that the foot has now for months been quite well—the last, and we hope final, incident in its pathological history having been the working out of a sequestrum through the skin without a trace of suppuration.

Chart 25 relates to a youth with a sinus in the heel which was discharging through three minute openings. The successive tuberculo-opsonic readings which are recorded on the chart on August 19th correspond respectively to samples of blood drawn off immediately before walking, immediately after walking, and one hour after walking There was, in addition to the readings that appear on the chart, also another reading on August 20th which gave a value of 1·1.

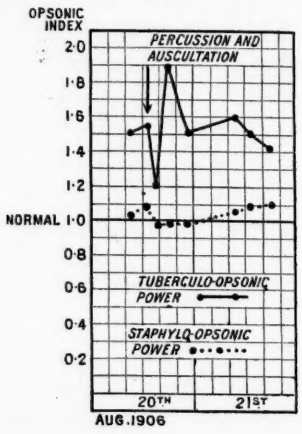
Chart 26 applies to a young medical man with caries of the spine. After very marked improvement in his condition had been achieved by vaccine-therapy the question arose as to whether improvement had gone far enough to allow of his sitting up in bed. The patient was instructed to make the experiment on July 3rd, withdrawing samples of blood for examination immediately before sitting up, half an hour after sitting up, again six hours after, and then on the two following days. Ten days afterwards the experiment was repeated and it was again repeated after another interval of 18 days. The results[9] of these tests seeming to us to warrant the inference that the focus of tubercle in the spine was still aglow, we suggested to the patient that it might quite well be prudent, with a view to the avoidance of excessive auto-inoculations, to sit up only at intervals of ten days.

The next two charts disclose the fact that auto-inoculation effects can in cases of pulmonary infection be elicited by respiratory exertions.

Chart 27 shows the fluctuation in the tuberculo-opsonic index of a comparatively quiescent case of phthisis which was elicited by a series of 40 maximal inspirations and expirations.

Chart 28 shows the fluctuations which were obtained in another case of phthisis by a thorough clinical examination of the chest. The patient was in bed at the time of clinical examination and remained in bed during the period of observation. Immediately before the examination his tuberculo-opsonic index—and we may no doubt ascribe this to an antecedent spontaneous auto-inoculation—stood at 1·4, while his staphylo-opsonic index stood at 1. The chart clearly shows that there supervened here upon the deep breathing, coughing, and other respiratory exercises which

CHART 28.



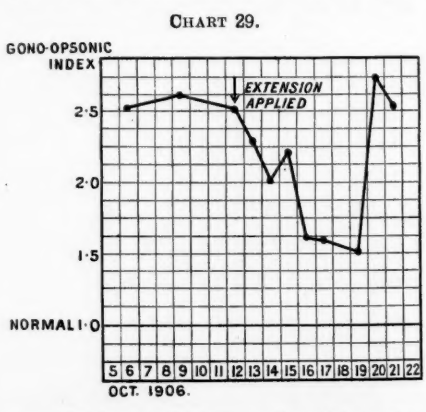
are associated with auscultation a characteristic negative and positive phase such as is obtained by the inoculation of tuberculin. The patient's staphylo-opsonic index remained, as the chart testifies, throughout unaltered.

We think that it is of interest to note in connexion with the evidence which is here furnished with respect to the induction of an auto-inoculation by clinical examination of the chest in phthisis, that the results here obtained are in harmony with the observation that periodical chest examinations may in the case of phthisical patients be followed by constitutional disturbance.

(For further examples of the induction of auto-inoculations by active movements of infected parts see Table under Serial Numbers 1, 2, 3, 4, 5, 23, 24, and 30.)

Chart 29 refers to a patient who was admitted to St. Mary's Hospital on Oct. 6th, 1906, with gonococcal arthritis, the knee being rigid and flexed. The patient's gono-opsonic index having been measured on Oct. 6th with the result

CHART 29.



shown upon the chart, a dresser was charged to apply extension. The patient's gono-opsonic index was again measured on the 9th and 12th. As the chart shows, practically the same values were obtained as on the first occasion. On Oct. 12th the surgeon in charge of the case examined the apparatus, found that it was not exercising any pull upon the leg, and proceeded to make the extension effective. Upon this the patient began to complain of

[8] Our record here fails us.

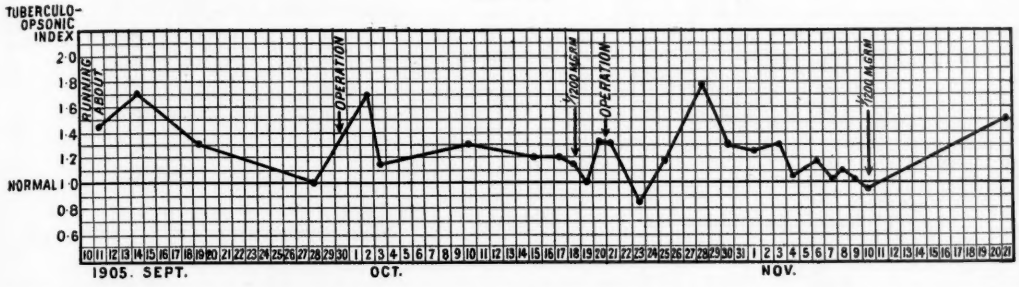
[9] It will be observed that we have here registered both on July 3rd and July 11th an initial rise very similar to that to which attention was drawn in connexion with Chart 1; and we have perhaps in the low initial readings of July 10th and July 18th in each case a secondary ebb, such as was illustrated in Charts 1 and 3.

general malaise and of pain in other joints. In association with this we registered the fall in the gono-opsonic index which is shown on the chart. External circumstances made it impossible to follow the curve beyond the point at which it here terminates.

VIII.—*Charts showing that Auto-inoculation Effects are Elicited by Operative Interference with Foci of Bacterial Infection.*

Chart 30 refers to a child, aged seven years, who was admitted to St. Mary's Hospital with caries of the fibula. Up to the time of admission the child had been running about in the country. Her tuberculo-opsonic index working out at 1·4, we came to the conclusion that the child had tuberculous disease, that she had auto-inoculated herself, in connexion with carious bone in the head of the tibia. The patient was taken into hospital and his blood was drawn off for examination, once on Nov. 20th, twice on the 21st, and again on the 22nd. His tuberculo-opsonic indices worked out for these occasions as 0·78, 0·7, 0·7, and 0·8 respectively. At 3 P.M. on the 22nd, immediately after the sample of blood which gave the reading last mentioned had been withdrawn, a hot poultice was applied to the ulcer. At 4 P.M., when the poultice was removed, the patient's tuberculo-opsonic index stood at 0·87; it stood at 6 P.M. at 1·1; at 8 P.M. at 1·06; and at 10 P.M. at 0·9. On the 23rd, at 2 A.M., it stood at 0·94; at 6 A.M. at 1·12; at 12 noon at 1·43; and at 6 P.M. at 1·35. Finally, on the 24th, the patient's index had reverted to its normal of 0·75.

CHART 30.



that immunisation was in progress, and that it would be advisable to postpone vaccine-therapy until such time as the child's tuberculo-opsonic index should have returned to the normal. Coming back to the case a few days after the patient's blood had been found to be normal, we found that a scraping operation had two days previously been undertaken and that the patient's index had risen to 1·7, to fall off again on the next day to 1·15. After watching the progress of events for another fortnight and finding that the patient's index was no longer fluctuating and that the case was not making rapid progress we proceeded on Oct. 18th to inoculate with tuberculin. On returning to test the result of this inoculation we found that a second scraping operation had been undertaken and that the rise of the opsonic index had been checked. Continuing our measurements of the opsonic index we registered, as will be seen in the curve, a typical negative and positive phase. Finally, when the patient's index had returned to the normal, we resumed our tuberculin inoculations.

CHART 31.

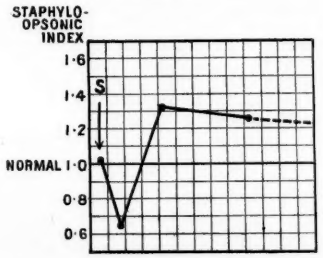


Chart 31 refers to a boy, aged 12 years, who was admitted to St. Mary's Hospital with osteomyelitis. The curve shows the typical negative and positive phase which supervened upon the opening up and scraping of the focus of infection.

Chart 32 refers to a child, aged seven years, with tuberculous disease of the hip, and *Chart 33* to a child with tuberculous glands on both sides of the neck. The curves show that in each case a typical fluctuation of the tuberculo-opsonic index supervened upon operation.

IX.—*Charts showing that Auto inoculation Effects are obtained by Active and Passive Hyperæmia Affecting Foci of Bacterial Infection.*

Chart 34 relates to a patient, a boy, aged 16 years, who presented himself for treatment with an extensive ulcer on the front of the leg below the knee standing

Manifestly we have here a quite typical auto-inoculation effect produced by bacterial products washed out of the focus of infection by the ampler lymph flow which is obtained by active dilatation of the blood-vessels. (Cf. Table, serial number 17).

CHART 32.

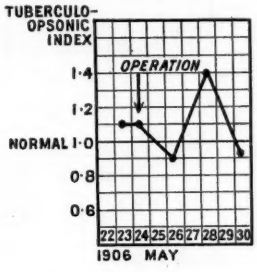
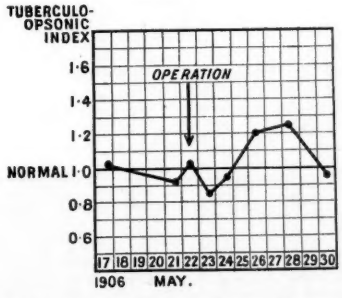


CHART 33.



The series of observations recorded in Charts 35–39 were made by us conjointly with Dr. F. S. Patch of Montreal. They show that auto-inoculation effects are induced by the passive hyperæmia which is recommended by Bier. Here, as in the case of active hyperæmia, the cause of the blood changes must assuredly be sought in the washing out of bacterial products from the focus of infection by the agency of the accelerated lymph stream.

Chart 35 refers to a young woman who was suffering from extensive lupus of the face and of both elbows. In the first of the two observations which are in question in this chart

the bandage was applied to the right upper arm for a period of two hours, and readings of the tuberculo opsonic index were taken, immediately before applying the bandage, immediately after the removal of the bandage, again two and four hours afterwards, and finally 24 hours afterwards. On the second occasion, some 14 days later, the bandage was applied round the arm for an hour, readings of the tuberculo-opsonic index being taken, immediately before bandaging, half an hour after the bandage had been applied, immediately after the removal of the bandage, one hour after, six hours after, and again 24 hours after. A striking clinical amelioration was here obtained from the application of the bandage.

Chart 36 refers to a boy, aged 10 years, who was suffering from lupus of the right hand associated with superficial tuberculides in both feet. The bandage was applied round the forearm. On the two occasions on which it was

CHART 34.

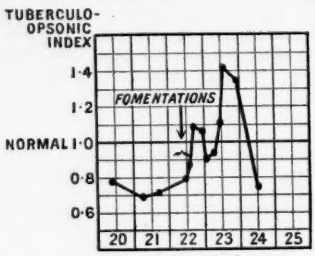


CHART 35.

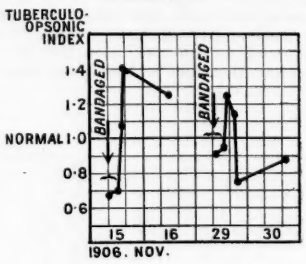


CHART 36.

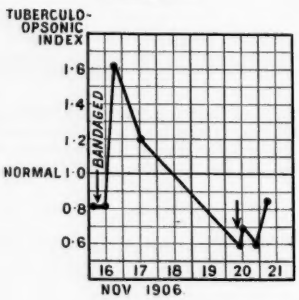


CHART 37.

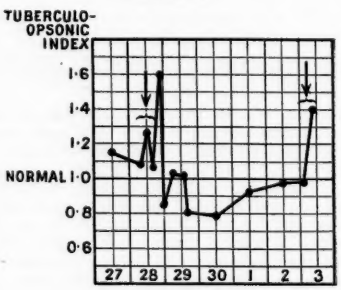


CHART 38.

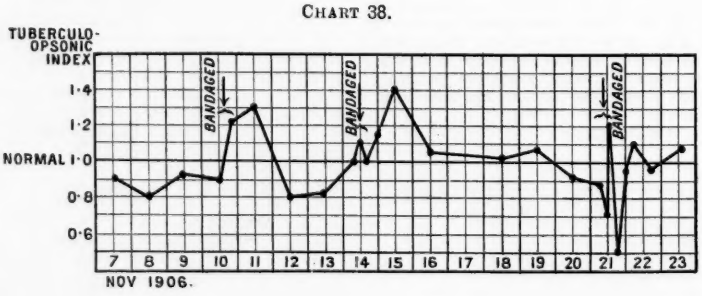
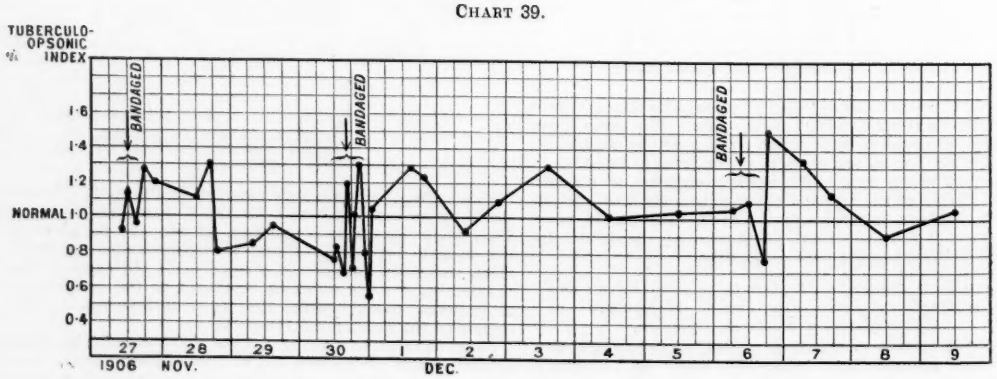


CHART 39.



employed it was applied in each case for one hour, readings of the tuberculo-opsonic power being taken, immediately before bandaging, immediately after bandaging, and again 8 and 24 hours after bandaging.

Of incidental interest in connexion with this chart is, first, the fact that we have here an example of the secondary ebb to which attention was directed at the outset of this paper, and further, the fact that a disproportionately small result, as compared with that obtained on the first occasion, was here registered in association with the second application of the bandage.

Chart 37 refers to a girl, aged 15 years, who was the subject of tuberculous synovitis of the right knee. In the first of the two observations which are in question in this chart the bandage was applied for one and a half hours readings of the tuberculo-opsonic index being taken 24 hours before, immediately before, in the mid-period of the bandaging, immediately after the bandaging, again one hour, six hours, 18 hours, and again 30 hours after the bandaging, and then daily for a succession of days. In the case of the second observation readings were taken only at the beginning and at the end of the bandaging.

Chart 38 applies to a child, aged two and a half years, who was affected with tuberculous synovitis of the right knee. Three separate observations were here made in the course of a fortnight, the patient being kept in bed during the whole period with a poroplastic case applied to the limb. The bandage was applied, on the first occasion, lightly for three hours, and on the second occasion equally lightly for three and a half hours. On the third occasion it was applied much more tightly, but only for one and three-quarter hours. On this occasion one reading of the tuberculo-opsonic index was taken immediately before the bandaging, three readings during the period of bandaging, and again another six hours after the removal of the bandage.

Chart 39 refers to a boy, aged nine years, who was affected with extensive glandular and cutaneous tuberculosis and who had undergone a very large number of operations with a view to the relief of these conditions. Large ulcers occupied the left forearm, the dorsum of the left hand, and the right supraclavicular region. Three separate bandaging observations are in question in the chart, the bandage being applied on each occasion round the upper arm on the left side. It was applied on the first occasion for one hour and on the second and third occasions in each case for three hours.

Of interest in connexion with this case are the following points. (*a*) Very striking amelioration of the patient's condition was here obtained, the open ulcers all healing over in the interval between the first and third bandaging. (*b*) The amelioration was not confined to the bandaged left limb; it was almost equally conspicuous in the large ulcer which occupied the supraclavicular region on the right side of the body. (*c*) On the first and second occasions on which the bandage was applied lymph poured out in a copious stream from open ulcers on the dorsum of the hand and forearm—showing clearly that we have to deal in the case of the bandaged limb with an activated lymph flow. (*d*) The lymph which poured out from the ulcer gave on each occasion lower tuberculo-opsonic readings than the circulating blood. In the case of the first bandaging the two samples of lymph which were tested gave readings of 0·8 and 0·62 respectively; the six successive samples of lymph which were tested on the second occasion gave a series of readings ranging downwards by gradual steps from 0·7 to 0·2. It may, we think, be inferred from this fact that the opsonic index of the fluid in the interior of the tuberculous focus stood at 0·2, or even lower, at a time when the opsonic index of the circulating blood stood at 0·8. (*e*) Finally, it is of interest to mention that on a subsequent occasion when after a relapse the bandage was again applied a lymph was obtained which conveyed tuberculous infection to a guinea-pig.

PART II.

Chart 40 refers to a patient who presented herself for treatment with a swollen wrist-joint which was suspected to be tuberculous. It appeared that the patient had in the past suffered from arthritis in the left hip and the right shoulder, and that these had been attributed to gout. The patient's tuberculo-opsonic index was measured on Sept. 25th last and on Oct. 4th and 8th. It worked out on the first occasion as 0·94, on the second as 0·95 and on the third as 0·97. As these readings furnished no indications of any tuberculous auto-inoculation, the patient was further questioned and a history of vaginal discharge was elicited. This discharge had, however, completely ceased and the vaginal secretion proved to be free from gonococci. The patient's gono-opsonic index was measured on Oct. 4th, 7th, and 8th. The readings obtained on these occasions were 1·1, 1·35, and 1·03. As these readings furnished no indication, or at best only a very doubtful indication, of a gonococcal auto-inoculation, a Bier's bandage was now applied to the patient's forearm for one hour. The gono- and tuberculo-opsonic readings which were obtained in association with this procedure are set out in the chart. It will be seen that they show a characteristic fluctuation in the gono-opsonic index, while the tuberculo-opsonic index remains quite unaffected. In view of this result the patient is now being treated with gonococcus vaccine.

CHART 40.

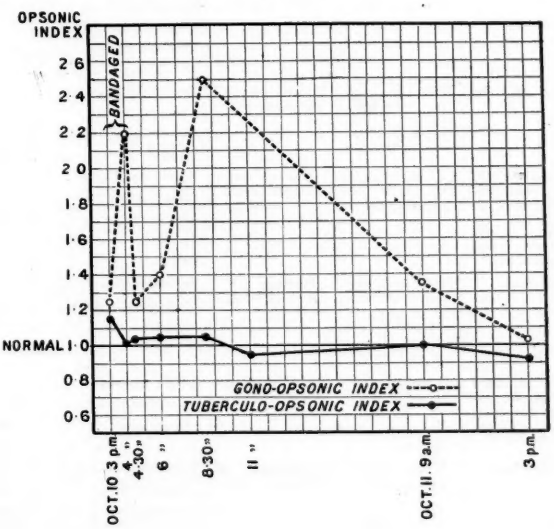


TABLE ILLUSTRATING SOME OF THE DIAGNOSTIC AND THERAPEUTIC PROBLEMS THAT CAN BE RESOLVED BY RECOURSE TO THE AUTO-INOCULATION TEST AND BY CONSIDERATION OF ITS EVENT.

No.	Clinical features of case.	Diagnostic or therapeutic problem.	Procedure resorted to with a view to the induction of an auto-inoculation.	Particulars of opsonic readings.	Conclusion arrived at, and remarks.
				Tuberculo-opsonic indices.	
1	Tuberculous phthisis. Tubercle bacilli in sputum.	May patient take gentle exercise?	30 minutes' sharp walk.	Before walk ... ... 1·09 Immediately after ... 1·02 6 hours after... ... ... 1·06 24 ,, ,, ... 0·98	Yes; he may take gentle exercise.
2	Same patient as No. 1.	May he take hard exercise?	70 minutes' hard walk.	Before walk ... ... 0·92 Immediately after ... 0·96 6 hours after ... ... 1·14 24 ,, ,, ... 1·03	Since 70 minutes' hard walk appears to induce an auto-inoculation it will probably be well for him to avoid very severe exercise.
3	Tuberculous disease of knee-joint.	Should vaccine-therapy with tuberculin be continued?	Walking exercise.	Before walking ... ... 1·10 Immediately after... ... 1·19 5 hours after ... ... 1·03 9½ ,, ,, ... 1·41 24 ,, ,, ... 1·32	Tuberculin inoculations ought to be continued.
4	Patient was suspected of phthisis and was rejected for an appointment, but was declared sound by two independent physicians.	Was he rightly rejected? (First test.)	Vigorous walk.	Before walk ... ... 0·85 Immediately after ... 0·62 6 hours after ... ... 0·73 24 ,, ,, ... 0·80	Patient is tuberculous and was rightly rejected.
5	Same patient as No. 4.	(Second test.)	,,	Before walk ... ... 0·79 Immediately after ... 0·56 6 hours after ... ... 0·71 24 ,, ,, ... 0·63	
6	Tuberculous disease of the knee.	May the knee be massaged to obtain more freedom of movement?	Massage of affected joint.	Before massage ... ... 0·91 1 hour after ... ... 1·44 6 hours after ... ... 0·76 7 days ,, ... 1·22	Knee must be kept at rest and inoculation with tuberculin would be appropriate.
7	Chronic arthritis of ankle-joint. In Australia lesion was diagnosed by one physician as rheumatic arthritis, by another, who found that his tuberculo-opsonic index was 0·74, as probably tuberculous.	Is the arthritis rheumatic or tuberculous?	Massage of affected joint.	Before massage ... ... 0·76 Immediately after ... 0·83 6 hours after ... ... 0·97 24 ,, ,, ... 1·00 48 ,, ,, ... 0·74	Patient is suffering from tuberculous arthritis. Inoculations with tuberculin are indicated.—These are being carried out with marked advantage.
8	Arthritis of ankle-joint.	Is the arthritis tuberculous?	Massage of affected joint.	Before massage ... ... 0·93 Immediately after ... 0·78 6 hours after ... ... 1·02 24 ,, ,, ... 0·93	Patient is suffering from tuberculous arthritis and inoculations with tuberculin are indicated.—These are being carried out with marked benefit to the patient.
9	Illness commencing acutely with abdominal symptoms and high fever. Abdominal pain and tenderness continuing, tuberculous peritonitis is suspected.	Is the disease tuberculous?	Gentle massage of abdomen for 10 minutes.	Before massage ... ... 1·31 Immediately after ... 1·12 6 hours after ... ... 0·88 36 ,, ,, ... 1·76	The disease is tuberculous.—The patient recovered completely under tuberculin treatment.
10	Suspected tuberculous disease of hip.	Is the disease tuberculous?	Movement of affected joint.	Before movement ... ... 0·90 ½ hour after ... ... 1·16 2½ hours after ... ... 1·02 7½ ,, ,, ... 0·94	The diagnosis still remains doubtful.
11	Since sprain eight months ago swelling and pain in left wrist, which has been getting progressively worse.	Is the disease tuberculous?	Bier's bandage applied to forearm of affected side for half an hour.	Before bandaging ... ... 0·74 Immediately after ... 0·92 ¾ hour after ... ... 0·89 18 hours after ... ... 0·77 36 ,, ,, ... 0·81	The disease is probably tuberculous.
12	Arthritis of ankle associated with much swelling, some tenderness, and pain. The onset was acute. A skiagram showed some bony lesion in tarsus. Amputation had been advised in another hospital but patient refused operation.	Is the disease tuberculous?	Bier's bandage applied above ankle for one hour.	Before bandaging ... ... 0·92 Immediately after ... 0·81 4 hours after ... ... 1·00 24 ,, ,, ... 0·74	The disease is tuberculous.—Inoculations of tuberculin have already produced a most marked improvement in the condition.
13	Painless swellings of the left wrist, elbow, knee, and ankle of three months' duration. Knee had been tapped and fluid had furnished a culture of staphylococcus albus. Sinus in ankle yields a culture of staphylococcus.	Is the arthritis tuberculous or staphylococcic?	Wrist massaged for ten minutes.	Before massage ... ... 0·98 ½ hour after ... ... 1·01 4½ hours after ... ... 1·15 22 ,, ,, ... 1·08 30 ,, ,, ... 1·15 *Staphylo-opsonic indices.* Before ... ... 0·70 ½ hour after ... ... 0·88 4½ hours after ... ... 0·78 22 ,, ,, ... — 30 ,, ,, ... 0·78	The disease appears to be neither tuberculous no staphylococcic.

TABLE ILLUSTRATING SOME OF THE DIAGNOSTIC AND THERAPEUTIC PROBLEMS THAT CAN BE RESOLVED BY RECOURSE TO THE AUTO-INOCULATION TEST AND BY CONSIDERATION OF ITS EVENT—(*Continued*).

No.	Clinical features of case.	Diagnostic or therapeutic problem.	Procedure resorted to with a view to the induction of an auto-inoculation.	Particulars of opsonic readings.	Conclusion arrived at, and remarks.
				Tuberculo-opsonic indices.	
14	Tuberculous arthritis of hip with secondary infection and sinuses.	Is the tuberculous disease eradicated?	Vigorous movement of hip-joint.	Before massage ... ... 1·06 ¾ hour after ... ... 0·96 2 hours ,, ... 0·86 5¼ ,, ,, ... 0·85 12 ,, ,, ... 1·06 24 ,, ,, ... 1·25 3 days ,, ... 0·69	Tuberculous disease is still present.
15	Dactylitis of two fingers following fall from a horse.	Is disease tuberculous?	Massage of affected fingers.	Before ... ... 0·95 ½ hour after ... ... 0·91 5½ hours ,, ... 0·73	The disease probably is tuberculous.—Practically complete recovery has taken place under tuberculin treatment.
				Gono-opsonic indices.	
16	History of swelling of joints after strain. Twice treated in hospital abroad for gonococcal arthritis.	Is disease due to gonococcus?	Massage of affected joint.	Before massage ... ... 0·97 6 hours after ... ... 1·00 24 ,, ,, ... 1·04	The arthritis is not of gonococcal origin.
				Tuberculo-opsonic indices.	
17	Tuberculous arthritis of knee and tuberculous kidney.	Does a hot fomentation applied to a tuberculous lesion produce an auto-inoculation?	Application of hot fomentations to tuberculous knee.	Before fomentation ... 1·00 1 hour after ... ... 1·32 2 hours ,, ... 1·14 8 ,, ,, ... 1·14	Yes. (Cf. also Chart 34.)
18	Tuberculous arthritis of wrist.	May tuberculin inoculations be abandoned?	Massage of joint and passive movement.	Before massage ... ... 0·78 15 hours after ... ... 1·24 24 ,, ,, ... 1·06 48 ,, ,, ... 1·17	No. Tuberculin inoculations must continue.
19	Ganglion on dorsum of wrist occurring in a patient with other tuberculous lesions.	Is this ganglion tuberculous?	Massage of ganglion.	Before massage ... ... 0·65 After ,, ... 0·65 1¼ hours after ... ... 0·69	Apparently not.
20	Tuberculous glands removed from neck five years ago. Diffuse swelling of wrist following accident five months ago.	Is the swelling of wrist tuberculous in character?	Massage and movement of wrist for 15 minutes.	Before massage ... ... 0·98 After ... ... 0·76 24 hours after ... ... 0·74	Yes.
21	Uncomplicated tuberculous hip treated by complete rest and inoculations of tuberculin for five months.	May inoculations cease?	15 minutes' massage.	24 hours before ... ... 0·85 Immediately before ... 0·91 ,, after ... 0·80 3 hours after ... ... 0·90 15 ,, ,, ... 0·94 24 ,, ,, ... 1·10 36 ,, ,, ... 0·81	Yes
				Gono-opsonic indices.	
22	Arthritis of long standing in a patient who has had gonorrhœa.	Is arthritis gonorrhœal?	Massage of affected joint.	Before massage ... ... 1·10 15 hours after ... ... 1·26 24 ,, ,, ... 1·37 3 days ,, ... 1·02 4 ,, ,, ... 1·00	The arthritis is probably gonorrhœal.
				Tuberculo-opsonic indices.	
23	Tuberculous disease of ankle.	Is tuberculous focus extinct?	Walked on affected ankle without splints.	Before walking ... ... 0·83 Immediately after ... 0·80 12 hours after ... ... 0·67 24 ,, ,, ... 0·79	Tuberculous disease may still be present.—Tuberculin inoculations were continued.
24	Same patient as 23, 26 weeks later.	,,	Walking and bicycling.	Before ... ... 0·85 After ... ... 0·73 12 hours after ... ... 0·73 24 ,, ,, ... 0·84	Probably focus is extinct.
25	Tumour in hypogastrium in connexion with the uterine body, diagnosed as probably tuberculous.	Is tumour tuberculous?	Massage of tumour for 20 minutes.	7 days before massage 0·83 3 ,, ,, ,, 0·87 Immediately before ... 1·23 ,, after... ... 1·25 5 hours after ... ... 1·30 24 ,, ,, ... 0·98	Tumour is tuberculous.—Tumour has markedly shrunk under the influence of tuberculin inoculations.
26	History of pain in hip and lameness. Examination by surgeon gave a negative result. Patient sent on for corroboration or otherwise of this diagnosis.	Is disease tuberculous, or may boy return to school?	Vigorous massage and movement of hip.	Before massage ... ... 1·00 Immediately after ... 1·09 6 hours after ... ... 1·05	Disease is not tuberculous and boy may return to school.

TABLE ILLUSTRATING SOME OF THE DIAGNOSTIC AND THERAPEUTIC PROBLEMS THAT CAN BE RESOLVED BY RECOURSE TO THE AUTO INOCULATION TEST AND BY CONSIDERATION OF ITS EVENT—(*Continued*).

No.	Clinical features of case.	Diagnostic or therapeutic problem.	Procedure resorted to with a view to the induction of an auto-inoculation.	Particulars of opsonic readings.	Conclusion arrived at and remarks.
27	Large mass of glands in groin, followed by development of extensive nodular masses in abdomen.	Are the glands tuberculous or malignant?	Glands vigorously massaged.	*Tuberculo-opsonic indices.* Before massage ... ... 0·96 Immediately after ... 1·45 6 hours after ... ... 0·95 24 ,, ,, ... 1·70 *Neo-opsonic indices.* Before massage ... ... 1·02 Immediately after ... 1·02 6 hours after ... ... 0·95 24 ,, ,, ... 1·67	Patient is suffering from tuberculous glands and malignant disease. Patient died some weeks later and at the necropsy it was found that the pelvic peritoneum was infiltrated with lymph-adenomatous masses. The retro-peritoneal and mesenteric glands were all enlarged and in some definitely caseated tuberculous deposits were found.
28	Suspected tuberculous laryngitis. Patient sent up from out-patient department for diagnosis.	Is laryngitis tuberculous?	Talked vigorously for one hour.	*Tuberculo opsonic indices.* 24 hours before ... ... 0·94 18 ,, ,, ... 0·98 Immediately before ... 0·87 ,, after ... 1·00 ½ hour after... ... ... 1·12 3½ hours ,, ... 1·24 6¾ ,, ,, ... 0·83 8¼ ,, ,, ... 1·00 12 ,, ,, ... 0·88 20 ,, ,, ... 1·00 30 ,, ,, ... 1·00 2 days ,, ... 0·75 3 ,, ,, ... 0·75	Laryngitis is probably tuberculous.
29	Osteomyelitis of femur with sinus resulting. Sinus has persisted for seven years.	Is there here persistent staphylococcic infection?	Bier's bandage applied for one hour.	*Staphylo-opsonic indices.* Before bandaging ... ... 0·53 During ,, ... 0·81 Immediately after ... 0·72 ½ hour after ... ... 0·84 1½ hours ,, ... 0·93 2½ ,, ,, ... 1·10 38 ,, ,, ... 1·81 72 ,, ,, ... 0·62	There is here persistent staphylococcic infection.—The sinus completely healed under the influence of staphylococcic inoculation.
30	Affection of eye diagnosed as probably tuberculous; suspected tuberculous disease of lung.	Is pulmonary tuberculosis present?	Vigorous tennis playing.	24 hours before playing 0·65 Immediately before ... 0·75 ,, after ... 0·75 5 hours after ... ... 0·99 24 ,, ,, ... 1·00	Pulmonary tubercle is probably present.

In concluding this paper we desire to express to the Medical and Surgical Staff of St. Mary's Hospital our gratitude for generous assistance unstintingly afforded to us in the prosecution of these studies.

THE GROWTH OF MALIGNANT DISEASE IN MAN AND THE LOWER ANIMALS,

WITH SPECIAL REFERENCE TO THE VASCULAR SYSTEM.[1]

BY PROFESSOR E. GOLDMANN
OF FREIBURG.

ON two previous occasions I have had the honour of addressing meetings in London in connexion with work referring to the relation of cancer to the vascular system. In coming before you to-day I do not wish to travel over ground already known to you. It is my main intention to give you a short *résumé* of the whole extent of my work and at the same time to draw your attention to methods of investigation which I am sure will prove beneficial to all willing to coöperate with me in the solution of a problem so intimately associated with the biology of malignant growths. My work has been conducted on human and animal material. I owe a debt of gratitude to Professor Ehrlich of Frankfort and to Dr. E. F. Bashford of London for valuable material from the mouse, such as carcinoma in its various forms, sarcoma, mixed tumours, and chondroma. In the short time at my disposal I can only mention my general results. A detailed account of, and an exhaustive reference to, the literature of the subject will be found in a treatise forthcoming. The points of view from which I have approached my subject are the following: (1) How far is the vascular system responsible for the dissemination of malignant growths? (2) What are the general conditions of circulation in these growths? and (3) What purpose does the multiplication of blood-vessels in malignant growths serve—merely that of nutrition or also that of defence?

As to the dissemination of tumours along the vascular system, I may refer to a treatise of mine published several years ago in which I proved by means of an elective stain for elastic tissue that both in the early stages of sarcoma as well as carcinoma an extensive invasion of tumour cells into the coats of blood-vessels occurs. It is a striking fact that this happens far more frequently in veins than in arteries and again that the results of this invasion can only be traced locally, rarely exceeding the area of round cell infiltration. Exactly similar results have been obtained

[1] An address delivered before a meeting convened by the Surgical Section of the Royal Society of Medicine on Oct. 23rd, 1907.

in the case of carcinoma and sarcoma of the mouse. In examining mouse tumours we must always bear in mind that we are dealing with vessels of comparatively small dimensions, whose elastic coat is hardly comparable with that of man. And yet careful investigation reveals in tumours of mice all the various stages of vascular degeneration common to man. I place great stress on these conditions, as my extensive study of benignant growths, even of such verging upon the boundary of malignancy, for instance goitre, has proved to me that tumour cell infiltration into the walls of channels bounded by elastic tissue is a characteristic feature of malignant tumours only. I may add that in those cases in which carcinoma of the mouse invades the lymphatic glands the pathological condition of these glands is a counterpart to that found in man. The cells enter the marginal sinus and penetrate from here along the lymphatics into the medullary substance of the gland. It seemed to me a subject of great interest to inquire into the conditions under which the tumour cells enter into the vascular coats. At a first glance it appeared most probable that they travel along the lymphatics. Yet all anatomists concur in declaring that the vascular coats contain no lymphatics, a statement confirmed by evidence gained from pathological experience, especially in cases of retrograde transportation of tumour cells along the lymphatic channels. In these cases the cells are almost exclusively confined to the perivascular spaces and hardly ever penetrate the vascular walls. Hence we are bound to assume that the dissemination of tumour cells into the vascular coats is effected by blood-vessels. This seems all the more likely when we consider how different are the appearances of arterial and venous cancer and how the distribution of tumour cells in arteries and veins coincides with that of the vasa vasorum. In arteries the tumour cells rarely proceed farther than the outer coat, whereas in veins they are generally found beneath the intima. Thus arterial cancer appears as a form of periarteritis, veinous cancer as one of endophlebitis carcinomatosa. Now it is accepted on all sides that the vasa vasorum in arteries remain within the limit of the outer coat, rarely branching into the superficial layer of the middle one, whereas in veins they extend beyond the middle coat into the region of the intima. It is a remarkable fact that this question, which is of such vast importance in the pathology of the vascular system, has met with such scanty attention in recent years.

In order to gain experience of my own I made use of a series of injections performed on fœtuses, bodies of newly-born children, and on amputated limbs removed from individuals of various ages and for various reasons such as injuries, tuberculous joint or bone disease, and senile gangrene. I applied a method which furnishes us with ideal preparations and found that in fœtuses and newly-born children there is no material difference between arteries and veins as regards their nutrient vessels. The distinction previously mentioned sets in in the first year after birth and prevails as long as the vessels remain intact. Hence the artery performs its important function I should say with a minimum supply of nutrient vessels. This explains the fact that we may dissect out an artery completely from its surroundings without affecting its nutrition, and again, that the artery retains its marvellous powers of healing, although cut off from its original base. The blood-supply of the arterial wall explains another and almost more important fact and that is, as Virchow puts it, the arteries act as isolators of pathological processes. All this changes as soon as pathological conditions arise in the artery, from within or without. Then the connective tissue and above all the vasa vasorum begin to proliferate and finally we find vein and artery alike permeated throughout their whole breadth by numerous vascular channels. Such conditions are most common in vessels within the area of malignant growth and it stands to reason that such vessels are more likely to harbour the tumour cells than healthy ones.

We must next consider as to whether these degenerative conditions in the vascular system are the causes of secondary growth. I believe that our views as to metastasis have been much modified by recent experience, which goes to prove that both in man and animals tumour cells pass into the circulation already at an early stage of the malignant growth. Lubarsch, Borst and others are therefore surely right in declaring that we must clearly distinguish between embolism and metastasis in malignant growths as so many of the tumour cells are destroyed within the circulation before they establish secondary tumours. The conditions under which these arise are most complicated and probably depend upon a number of factors, partly of a chemical nature hitherto quite unknown. The question which has given rise to much discussion is as to how these cells get into the vascular system. There can be no doubt that vascular degeneration, such as I have described, is a predisposing factor, and yet Martin Schmidt has proved almost to a certainty that in his remarkable cases of abdominal cancer in which diffuse embolism of the pulmonary arteries took place, without the appearance of secondary lung tumours, the cells entered the blood-vessel through the thoracic duct. I am inclined to believe that we gain a more definite conception of the whole question of metastases only by paying due consideration to recent research work bearing on acute wound infection. Besides other I have above all Nötzel's work in mind; he has proved in a series of experiments conducted on rabbits that after injection of bacteria into the knee-joints these bacteria appear within a few minutes in the regional lymphatic glands and in the general circulation as well. The fact that these experiments were performed on healthy joints without any damage to them and also without undue pressure of the injected material allows of one conclusion only, that the absorption of the injected bacteria was effected by the lymphatic system. The rapid dissemination of the germs in these experiments appears to clash with the current theory of lymphatic circulation, inasmuch as the interposition of lymphatic glands has always been regarded as a retarding factor. Nötzel justly reminds us that even in the lymphatic glands anastomoses exist between afferent and efferent vessels and that according to the extensive investigations of Druner such anastomoses are a most common occurrence among the larger lymphatic ducts. This, again, concurs with our surgical experience, which has shown that transverse ligature even of the thoracic duct, has no evil effect upon the lymphatic circulation. On this basis we fully understand how germs travelling along the lymphatics enter the vascular system both rapidly and without necessarily passing the lymphatic glands. We must therefore cease to regard the lymphatic glands as local centres of defence or as filters. All these facts have, to my belief, a most important bearing upon the problem of tumour metastasis.

As regards the relations between the lymphatic and vascular system I am inclined to assume that they are far more intimate than we have hitherto believed. It has struck me that on injecting veins, such as the jugular, which are encompassed by lymphatic glands, the injected fluid passes with greatest ease into the glands, from which I infer that the vascular system of gland and vein are closely associated. But there must even be relations of a more direct nature between the two systems.

I will not dwell upon the subject of hæmolymph glands which are said to occur in man also. I only wish to draw your attention to recent embryological research. Serbin of the Johns Hopkins University has shown that in man and mammalia of a higher order the whole of the lymphatic system is a derivative of the veins not only of the jugular but of the iliac veins as well. Numerous instances have been recorded by anatomists of the older school in which great lymphatic trunks have been found to enter into other than the jugular veins, such as the iliac, azygos, and others. Unfortunately Henle's repudiation of such observations has debarred others from following up more closely the question whether such connexions actually exist, or whether they are to be regarded as exceptional. Not until all these dubious points are perfectly cleared up can we hope to understand the question of metastasis in general and of tumour metastasis in particular.

I have arrived at my second point: What are the general conditions of circulation in malignant growths? For information on this score we are obliged to go far back into the history of medical science, back to the writings of John Hunter, Schroeder, van der Kolk, Broca, and others. In recent years Ribbert has been the only one who has dealt with this question in a short paper, in which he endeavours to prove that the deficiency of blood-vessels in carcinoma is the cause of cell necrosis. In order to elucidate this point more precisely I have applied different methods for the human individual and the mouse. In cases of human cancer I exposed the femoral artery and injected an emulsion of bismuthum and oil into the blood-vessels. After tying the afferent and efferent vessels of the cancerous organ I dissected them most carefully from their surroundings and exposed them to the x rays. Such injection specimens are

incomplete from an anatomical point of view, yet they give us a general idea of the state of vascularisation in cancer. I mean to show you a serious of plates demonstrating cancer in the liver, stomach, bowel, bladder, and lung.

On examining these various plates, the first point that strikes us is, that the regular distribution of blood-vessels is disturbed by the invading growth. We know from the splendid work which Mall and his pupils have done that the distribution of blood-vessels in the various organs is absolutely characteristic of them, and chiefly dependent upon their embryological development. As soon as a tumour develops in the liver, stomach, or any other organ, you see that this regularity gives room to chaotic irregularity. Then again we find that in the growing tumour extensive new formation of blood-vessels happens. This is most apparent in the zone of proliferation, which in infiltrating tumours corresponds to their periphery. As the cancerous growth increases in volume its centre gives way to necrosis and the newly formed blood-vessels merely occupy its capsule. Ultimately the blood-vessels seem to disappear altogether, so that in this stage cancer is far from rich in blood-vessels, but rather denuded of them. The mass of newly formed vessels is of small calibre and their branching is irregular to such an extent that big vessels split up into the smallest of their kind without intermediary types.

In order to amplify the results obtained in man I have injected spontaneous and experimental growths occurring in mice by means of the following method. After exposing the heart of the anæsthetised animal I punctured the heart and injected Indian ink, avoiding excessive pressure. Indian ink, as the Johns Hopkins School of Anatomy has shown, is a medium which flows easily into the blood-vessels and mixes freely with the blood. By manometrical regulation of pressure we are enabled to modify the result of the injection according to the desired effect. After injection the specimens were fixed and hardened in alcohol. For microscopical purposes transverse, and in some cases serial, sections of the whole animal were made which enabled us to gain an exact estimate of the relations existing between the transplanted growth and the surrounding organs. Such specimens likewise provide us with the power of judging of the origin of the newly formed blood-vessels, of their number, form, and width, as compared with adjacent tissues or organs.

Another set of specimens was cleared after the Schultze method by placing them first in alcohol to which a few drops of potassium hydroxide solution were added, then removing them into glycinerated alcohol, and, finally, into pure glycerine. Marked differences in the whole arrangement and number of blood-vessels were discovered in the various malignant tumours examined. One common feature was observable in all of them. As soon as infiltrative growth of the transplanted cells sets in a great commotion is produced in the system of surrounding blood-vessels. The degree of commotion is dependent upon the wealth of pre-existing vessels, hence in strongly vascularised tissue, such as the mammary gland or the muscle, the vascular irritation is far more pronounced than in the subcutaneous tissue poor in vessels. This irritation presents itself most distinctly in the vessels facing the growing tumour and can easily be traced in regions to which the tumour has not yet advanced. The most striking feature of this irritation is the dilation of the affected vessel. It curls itself up into spiral coils and sends forth numerous capillary offshoots towards the invading growths. In carcinoma the newly formed vessels arrange themselves almost entirely in the peripheral area. In relation to its increasing volume the number of vessels found in carcinoma decreases and eventually they disappear altogether, most especially in cases where complete necrosis happens.

In sarcoma, again, the numerous vessels of new formation are evenly distributed throughout the whole growth, presenting themselves as a delicate closely woven network even in the interior of the tumour. Nowhere are the differences as to vascular supply between carcinoma and sarcoma more apparent than in mixed experimental growths of the carcinoma sarcomatous type. Even in cleared specimens it is easy to single out the cancerous and sarcomatous spaces by the varied degree of vascular injection.

Wholly different are the appearances in chondroma of the mouse. As Ehrlich has shown, this extraordinary growth presents a blood-red surface on dissection, from which he infers that its cells have distinctly angioblastic properties. I found that its capsule is rich in vessels and likewise the derivatives of the capsules, the wide bands of connective tissue, which separate the islands of cartilage. A large number of these vessels penetrate into the cartilaginous masses and open out into the large vascular spaces, apparently losing all the characteristics of blood-vessels. These vascular spaces disintegrate the cartilage tissue. Numbers of cartilage cells are thus destroyed.

Since these various tumours are produced in the same species of animals by units of implanted cells the results obtained bring two points into clear prominence. One that has been recently demonstrated by Bashford and others is that the stroma of experimental tumours owes its origin to the inoculated animal and is not derived from the grafted cells. Another point of greater importance is the fact that the structural qualities of the stroma are determined by the tumour cell.

From what I have said regarding the vascular condition of carcinoma and sarcoma it might appear that there is a fundamental difference between them inasmuch as the new formation of blood-vessels in sarcoma is so much richer than in carcinoma. This view has been advanced by many of our leading pathologists who maintain that carcinoma and sarcoma, owing to their genetic affinity to the epithelial and connective-tissue cells, react respectively upon the lymphatic and vascular system. Unfortunately we know next to nothing as to what changes carcinoma induces in the number of lymphatic vessels. All we know is, that a reproduction of lymphatic glands sets in, in a manner first described by Bayer and recently confirmed by Ritter, who goes the length of proclaiming that the swelling and new formation of lymphatic glands is a typical and early response on the part of the body to the invading cancer cell.

As against the theory of diminished vascular activity in cancer, it may be stated that various forms of cancer vary in their wealth of blood-vessels. Bashford has acquainted us with the interesting fact that in his long series of experimental cancer he has observed complete and distinctive differences in his strains. A tumour which was poor in vessels and widely necrosed was transformed into one of exactly opposite qualities. In this connexion I may refer to Ehrlich's interesting observation on the transformation of carcinoma into sarcoma in the mouse. As you know, Schmorl was the first to record a similar case in man affecting the thyroid gland. But recently I was obliged to deal with a case of mammary cancer in which complete removal of the breast and the axillary glands on both sides failed to have the desired effect. Numerous secondary growths formed in the front chest wall. After the patient had recovered from a bad attack of pneumonia and extensive suppuration spreading over the front chest wall, the metastatic tumours in the skin broke down and formed polypous, extremely vascular, growths which ultimately led to the patient's decease. On examining these tumours of the skin in their later stages it was found that all traces of cancer had disappeared and that fusiform-celled sarcoma had taken its place. On the strength of all this evidence I do not hesitate to declare that the difference in the vascular activity of carcinoma and sarcoma is a quantitative and not a qualitative one. A difference merely exists as far as the destructive powers of the carcinoma and sarcoma cells are concerned, since destruction of blood-vessels is so very much more apparent in cancer than in sarcoma.

I mentioned that the impetus which gives rise to the proliferation of blood-vessels emanates from the invading cell. On the other hand, the study of experimental tumours has proved that the new formation of blood-vessels itself is dependent upon the general powers of the individual to react, as well as upon the physiological condition of blood-supply in the invaded tissues. It seems more than probable to me that in a system weakened by age or pre existent disease the vascular reaction induced by the malignant growth remains below the mark or fails to take place, thus giving rise to a condition first described by Thiersch as premature senescence of the connective tissue in cancer.

In any case, I regard vascular neoformation as a standard by which we may test the body's power of reacting against malignant tumours. On the other hand, we can measure the virulence (*sit venia verbo*) of the tumour cell by the extent of necrosis found in the growth. I suppose most pathologists of the day are agreed that necrosis is not caused by accidental reasons, such as pressure, malnutrition, and others. Borst has rightly pointed out that in growths highly vascularised necrosis is a common occurrence. I may refer you to the case of chondroma in the mouse, a growth essentially vascular and yet permeated by cell necrosis.

Necrosis, as Ritter has put it, is bound up with the primary cause of the disease, in the same sense that it is in tuberculosis or other infectious diseases. I differ from Ritter in one essential point. He looks upon the border of healthy cancer cells surrounding the necrotic area as a reactive cell proliferation on the part of the body and the area of necrosis as the tumour *sensu striotiori*. These cells on the necrotic border, I rather believe, are the militant survivors of the invading brood, whereas the body's reaction is marked, as I have tried to show, by the newly formed blood-vessels and connective tissue. The area of necrosis is, in my opinion, the battlefield on which assailant as well as the defender perish, for it is not only the tumour cell that is destroyed but the stroma as well.

I have reached my last point in considering what purpose the new formation of blood-vessels serves. It seems to militate against all our modern views concerning the functions of the blood if we assume that only nutrient and not also defensive material is borne along the newly created blood channels. How can we account for the difference of vascularisation in the healthy and diseased blood-vessel on the basis of a nutritive theory. A healthy artery performing vital functions has a minimum of nutritive vessels confined to its outer coat. As soon as disturbance of any kind sets in blood-vessels spring up and ramify throughout the whole breadth of the vessel's wall. Is it at all probable that the body would produce such a mass of vessels in order merely to feed a circumscribed thickening of the inner coat, frequently the only anatomical lesion definable? Does it not seem far more likely that the newly formed vessels serve an intensified circulation in the arterial coat, thus guarding it against change from within or without? Here, again, as in the case of Ehrlich's side chains, is an instance of an arrangement in the body originally destined to safeguard one of its organs but eventually developing into a cause of harm. In this connexion I may recall to your mind observations of my own recently confirmed by Schmidt, Lubarsch, and others. Tumour cells constituting a thrombus or embolism may multiply within a blood-vessel and spread along its branches without forming adhesion to the vessel's coat. In case such adhesions form—i.e., as soon as infiltrative growth occurs—the mass of cells is organised in the fashion of the ordinary blood clot. In such cases it is quite the rule to observe that the cells degenerate frequently to such an extent that the cancerous nature of the thrombus or embolism is completely obliterated. Only by means of serial sections may we determine the true genesis of the organised thrombus. I am certain from my experience that similar conditions frequently prevail in lymphatic glands, apparently the seat of secondary cancer. Clinically all the symptoms of regional metastasis are evident, and yet histological sections of the gland merely reveal inflammatory hypertrophy. This accounts for the great difference of opinion amongst gynæcologists as to the advisability of removing lymphatic glands in cancer of the womb. I do not hesitate to declare that, as in the case of cancerous embolism, careful examination of the glands in serial sections would show that they contain isolated cancer cells but that the bulk of these cells has undergone degeneration. All these facts prove that the body commands powers of combating cancer and healing it. An overwhelming amount of evidence on this score has been recently brought to light by Lomer. He refers to upwards of 200 cases of cancer in which the clinical diagnosis was almost invariably confirmed by histological examination and in which recovery set in, partly without surgical interference, partly after incomplete removal of the growth. In his first series of cases the cure was preceded by constitutional alterations of the blood induced by febrile infections of general nature, by severe hæmorrhage, by extensive burns, and by blood poisoning. In the second series the cut surface of the incompletely removed growth was cauterised by heat or by chemical agents.

Are we justified in doubting the potential efficacy of the x rays and radium in cancer in the face of all that has been recorded in man and animal? If we analyse the anatomical basis of all those cases of cancer in which complete recovery or retarded growth has been achieved spontaneously or by means of mechanical, physical, and chemical agents, we always discover the same reaction on the part of the body—namely, the formation of stroma. It is of great interest, perhaps also of fundamental importance, that extensive local hæmorrhage serves as the precursor of this cell proliferation.

From these remarks it might appear that I regard the blood-vessels themselves as agents of defence. On the contrary, I staunchly uphold Virchow's doctrine, so ably confirmed by Ehrlich's famous researches on the varied powers of oxidation in the body, that the cells are not fed by the blood-vessels but that the cells fed themselves. Therefore I regard the network of newly-formed vessels merely as the useful means of more active blood circulation. Intensified circulation itself, if I may so call it, is the effect of all those healing powers which I have just referred to, inclusive of inflammatory agents, such as have recently been recommended for the treatment of cancer by Bier and others. The efficacy of this intensified circulation is naturally dependent upon the presence of defensive factors in the blood. It will remain a subject for future research to discover what these defensive substances are and, above all, where they are manufactured. It seems to me that our present clinical and pathological knowledge already enables us to infer that the body's first line of defence is established on the boundary of the invading growth. From this point of view we understand cases like the following, which I believe have come within the notice of every surgeon. Patients suffering from cancer of slow growth and long duration are advised to have it removed instantaneously. The operation is successfully performed and the healing process is normal. Yet the patient returns within a short time suffering from a recurrence which has grown rapidly and has assumed features of an alarming nature. It appears to me that in such cases the surgeon's knife has done harm. In removing the growth he has destroyed the barrier of defence which the body has carefully raised up during the long period of the tumour's existence. I know full well that many of my surgical colleagues will disagree with me. And yet I feel that the time has come for us to consider whether stereotyped surgical interference is the only remedy of the future for malignant growths. Should we not rather begin to individualise as we do in every other disease which is brought to us for treatment. But how can we individualise if we pay no attention to the individual characters of the case we treat, if above all things we pay no heed to the efforts of the body to ward off the threatening danger? Can we wonder that such contradictory views still exist as to the rational and radical treatment of cancer? All of you know too well what a marked contrast there is concerning the operative treatment and its ultimate results in mammary or uterine cancer as advocated by Bryant, Halsted, by Wertheimer, Olshausen, and others. Nothing is more harmful to the progress of our science than doctrinary stagnation. We should not pause before the spectre of apparent retrogression. In our attempts to force the stronghold of cancer we fare no better than the engineer whose railroad winds round and round the height he means to pass. And yet how comforting the knowledge that whenever we complete a circuit we have ascended to a higher level of truth.

If I have succeeded in proving to you that it is our duty not only to study the biological problem of the tumour cells but to gain a deeper insight into the defensive agencies of the body as well, the purpose of this lecture has been achieved.

As the practical result of my work I regard the following: A careful study of the vascular conditions prevailing in malignant growths affords an anatomical test of the reactive powers of the body. It will be necessary to collect more extensive evidence on these lines in order to bring it into closer relation with our clinical knowledge of the varied appearance and history displayed by the different forms of cancer affecting the same organ. In future, for example, in the case of the mamma it will not be sufficient for clinical and therapeutical purposes to distinguish between scirrhus, adenoma, &c., from a purely histological point of view as to the arrangement of the tumour cells, their different forms of degeneration, &c. It is equally important to discover their reactive powers on the body as tested by stroma formation. By this means we shall sooner realise my demand for treatment based upon a knowledge of the individual qualities of the growth.

On a future occasion I may be permitted to give you an account of my investigations into the causes of retarded metastases and into the peculiar vascular conditions prevailing in localities predisposed to malignant growths. Above all things, I hope to be able to report on a first attempt to penetrate into the darkness of physiological conditions existing in malignant growths. I am engaged in research on the varied powers of oxidation and reduction characteristic of the various tumour cells.

I have purposely refrained from comparisons of any kind

between malignant growths and infectious diseases and yet it will hardly have escaped your notice that every point which I have discussed revealed most striking analogies between them. As far as syphilis and tuberculosis are concerned I have dwelt upon these analogies exhaustively in a paper read before the International Cancer Congress at Heidelberg.

A CASE OF RUPTURED BLADDER: OPERATION 42 HOURS AFTER THE ACCIDENT; RECOVERY.

BY P. H. LANG, M.B., CH.B. MELB.

THE patient, a man aged 49 years, working on a station in the district of Camperdown as men's cook, was thrown out of a buggy on the evening of May 26th owing to the wheel striking a stone. He was driving home after spending the Sunday afternoon at an adjoining station, and had taken several drinks but said that he had passed urine about an hour before the accident. Directly after the fall he felt severe pain in the abdomen, and this became worse during the night. On the morning of the 27th he had frequent desire to micturate but could pass nothing, and had passed no urine since the accident. By this time the pain was extremely severe, and the only position in which he could get any ease was standing in a crouching position hanging with his hands on to a rope tied above his head. This position he maintained for the next 28 hours. Owing to a groundless fear of getting their mate into trouble none of the other men said anything to the owner of the station in regard to the cook's condition, and the only treatment they adopted was occasionally to bathe the genitals with hot water in the hope of getting him to pass urine. Finally the patient's condition became so bad that some of the men informed "the boss," who, recognising that the case was urgent, sent him into Camperdown and lodged him at the private hospital. The distance is close on 20 miles, but was quickly covered by motor-car; the patient, being unable to sit down, stood in the tonneau of the car with his elbows resting on the back of the driving seat and a man sitting alongside held him from falling over during the journey. He was admitted on the morning of the 28th. On arrival at the hospital he was able to walk, with the body very much bent forward, but on lying down he had terrible pain, so bad as to make him scream out. He was quite unable to extend the legs, but they had to be held up with the knees bent to make the pain at all endurable while he was being examined. His temperature was 97·4° F. and his pulse was 120 and of very poor volume. The face was drawn, the expression was anxious, and the breathing was hurried. The abdomen was distended, dull in the flanks, and resonant elsewhere. No motion or flatus had been passed since the accident, and all the urine passed had been a few drops on the day following the accident. Vomiting was frequent, occurring every few minutes, a few ounces of dark-coloured fluid being brought up each time without apparent effort. This was very offensive in smell but was not fæcal. On passing a catheter a few ounces of deeply blood-stained urine were drawn off. As it was plain that the bladder was ruptured preparations were made for immediate operation. The patient had been given a hypodermic injection of morphine immediately the examination was completed and a diagnosis arrived at. Just before being placed on the operating table he was given a hypodermic injection of strychnine.

The abdomen was opened by the usual median incision below the umbilicus. On incising the peritoneum a regular fountain of blood-stained urine shot out, having evidently been under considerable pressure. Several quarts of this urine were present in the peritoneal cavity. The coils of intestine which presented in the wound were very distended and a general peritonitis was present. There was a rent in the posterior surface of the bladder sufficiently large to admit three fingers. Even with the patient in the Trendelenburg position, with the distended intestines shut off with flat gauze pads, considerable difficulty was experienced in obtaining good access to the wound in the bladder owing to the thickness of the abdominal walls. The rent in the bladder was sewn up as accurately as possible with catgut in iodine solution. Owing to the sodden and swollen state of the tissues it was difficult to make out accurately the demarcation between the bladder and peritoneum at the site of the rent, and one felt rather dubious as to whether the stitches would hold, since the tissues seemed very rotten. At this stage of the operation the patient's condition was extremely bad, so the peritoneal cavity was rapidly washed out with normal saline solution, the wound was sutured up in one layer with silkworm gut, and a large rubber drainage-tube was left in the lower angle of the wound to drain the pelvis, while a strip of gauze was passed down beside the tube to the site of the sutured wound in the bladder. A catheter was passed and tied into the bladder. The head of the patient's bed was raised and he was also propped up to some extent with pillows with the object of causing fluids to gravitate away from the more absorbent zone of peritoneum about the diaphragm into the pelvis. Hypodermic injections of strychnine were ordered every four hours, one-grain doses of calomel were given every hour for six doses, and the patient was infused to the amount of several pints in the next 24 hours. In addition to this large rectal injections of normal saline solution were given every four hours, with the object of reversing the current of the lymph stream—the idea being, according to an article by Mayo Robson in THE LANCET of Dec. 29th, 1906, that large rectal injections cause the mouths of the peritoneal lymphatics to pour out fluid which carries septic material into the pelvis instead of their absorbing this septic material as is usually the case. After the operation vomiting was frequent, dark-coloured fluid being brought up without apparent effort every ten minutes or so. This vomiting continued for four days with longer intervals gradually occurring between the vomiting, so that on the third day it only occurred every hour or so. For about two days the vomit consisted of a dark brownish-coloured, very offensive smelling fluid, which, however, was never distinctly fæcal in character. On the second day attacks of hiccough were frequent, but by the fourth day there was only an occasional short attack of hiccough, and it ultimately subsided.

Up to the fourth day the patient was kept going with nutrient enemata in addition to the rectal injections of normal saline solution, but by the fourth day he retained small drinks of iced brandy and water and peptonised milk. The patient's temperature was subnormal on the evening following the operation and the pulse ranged between 120 and 140. On the day following the operation the temperature was 98·4° and the pulse was between 120 and 140. On the succeeding day the temperature rose to 102° and the pulse-rate kept over 120. From this time both temperature and pulse came steadily down until by the fourth day the morning temperature was 98·4° and the pulse was 62. In spite of frequent enemata and aperients (none of the latter of which were retained, however, owing to the vomiting) no action of the bowels occurred until the third day and the abdomen remained very distended. On the third day there was a free action of the bowels, and after this for 24 hours the bowels were quite beyond the patient's control and were moved very frequently. The catheter was removed on the fourth day after operation and the patient after this passed urine himself. The wound drained well and there was no leakage of urine until the seventh day. A urinary fistula then developed and the greater part of the urine was passed through the wound. This fistula finally closed and six weeks after operation the patient was up out of bed with the wound quite sound.

The endurance of the man was remarkable. When the pain became so bad as to render it impossible for him to lie down he adopted the position of greatest ease—i.e., standing on the floor with the body crouched and supporting his weight by hanging on to a rope tied above his head. This position he maintained for 28 hours and though in terrible pain was anxious to continue in this way so as to avoid informing "the boss," as he said he thought "it would work off." He then had a long motor journey of close on 20 miles and was unable to sit down all this time, but stood in the tonneau of the car with his elbows resting on the back of the driving seat while a man sitting beside him held him from falling over. In all about 42 hours elapsed from the time the bladder was ruptured until he was operated on.

My thanks are due to Dr. J. G. Desailly for his skilful assistance and advice during the operation and to Dr. Haynes for the way in which he administered the anæsthetic.

Camperdown, Victoria, Australia.

A CASE OF INJURY AND ONE OF EXPOSURE OF THE BLADDER IN OPERATIONS FOR FEMORAL HERNIÆ; RECOVERY IN BOTH CASES.[1]

BY JOHN D. MALCOLM, F.R.C.S. EDIN.,
SURGEON TO THE SAMARITAN FREE HOSPITAL.

THE radical cure of a hernia when there are no acute symptoms should be free from danger to life, but there are on record a considerable number of cases in which the bladder was injured in the course of that operation by which accident an unexpected risk was created. The following cases show that it is not always easy to recognise the bladder in the canal of a hernia. Probably the rarity of the conditions in which the bladder is in danger tends to put the surgeon off his guard but frequently, as in my own case, when the bladder has been injured the fact was not immediately discovered and thus the danger was greatly increased. The Arris and Gale lectures of the year 1900, in which Mr. B. G. A. Moynihan drew attention to this subject, were published before my first case was operated upon,[2] but I had not read them at that time. In these lectures records were collected of 171 cases in which the bladder was found in a hernial sac and statistics were quoted showing that it had been seen in about 1 per cent. of all operations for hernia. In 53 cases the bladder was injured and the fact was immediately noted, the mortality in these circumstances being over 17 per cent. In 22 cases a cystocele was "first recognised after operation because of wounding of the bladder." The mortality was not given. In 19 cases a cystocele was "found post mortem." When its situation was stated the bladder in men was found in the crural canal twice and in the inguinal canal 128 times, whereas in women it was found 27 times in the crural canal and 11 times in the inguinal. In a separate record quoted from Ansinn, of 33 cases in which the bladder was observed in the crural canal 30 of the patients were women.

Thus it would appear that the bladder has been observed in femoral herniæ much less frequently than in inguinal, but that in women the complication is more likely to be met with in the crural canal. There are three varieties of cystocele—namely, intra-peritoneal, in which a part of the bladder is within a peritoneal sac; extra-peritoneal, in which it protrudes uncovered by peritoneum; and para-peritoneal, in which it is dragged outwards at the side of a sac which is partly formed by peritoneum covering the wall of the bladder. Mr. Moynihan also referred to a form described by Hermes as "operative cystocele," in which the bladder is pulled into the canal in the course of surgical treatment and is thus exposed to injury. Both my cases were of this last kind and in each case the rupture was through the right crural canal of a young woman. In a femoral hernia the parts are less easy to observe and to manipulate than in the inguinal variety, and therefore it is important in considering the difficulties and dangers of these cases to differentiate clearly between the conditions as they occur in the two commoner kinds of rupture.

CASE 1.—The first patient, a trained nurse, 26 years of age, very anæmic but otherwise healthy, was sent into the Samaritan Free Hospital under my care by Dr. Reginald Hartley seven years ago. The hernia, which was on the right side, went back when the patient lay down, but it caused a sense of weakness which interfered with her work. A radical cure was recommended and I operated on May 1st, 1900. Although the canal was very open I had difficulty in finding the sac. Something intervened which seemed to me to be an unusually thick layer of subperitoneal fat. As a matter of fact, it was the bladder. It has been said that the red structure of the muscular wall of this viscus should be easily recognised, but possibly owing to the anæmia it was not obvious in my case. The patient had passed urine immediately before the operation and no escape of urine from the wound was noticed. It might be thought that an incision through the bladder wall should expose an easily observed cavity. It did at one time appear that a cavity had been opened and a probe was used, but as I expected it to enter the peritoneal sac I pushed it upwards and outwards and so failed to recognise the true state of affairs. Again, we might expect that the firm structure of the bladder wall would command attention, but in my second case when I examined the parts, knowing exactly what they were, the bladder wall was so soft that it might easily have escaped detection by touch.

As I was not able to define the parts I asked the anæsthetist to allow the patient to become subconscious, so that she would strain. A hernia then descended to the outer side of the tissue which I had been cutting and pressure sent it back with a characteristic gurgle. I drew down the sac, tied its base, and closed the canal and the wound. There was no bleeding or other indication that the supposed fat should be re-examined and it was not recognised that the bladder was injured. Some five hours later I went to the hospital and found the patient complaining of much pain. From the position of this pain I thought that the bladder was probably over-distended and the nurse was told to pass a catheter. She drew off about half a pint of bright red fluid and I immediately recognised that the structure which had puzzled me so much during the operation must be the bladder and that it was wounded. As soon as possible the abdomen was explored through the middle line, but the peritoneal cavity was shut off from the groin wound, and therefore this second incision was at once closed. The wound in the groin was then opened up and the exposed parts, including the bladder which had been freely opened, were thoroughly washed with a weak antiseptic solution. In arranging for drainage I discovered that the ligatures around the base of the hernial sac had been displaced by the manipulations and that the cavity of the peritoneum had become continuous with that of the lateral wound. The incision in the middle line was therefore reopened, an injury to the bladder over an inch long was found and repaired in layers by means of catgut sutures, and the peritoneum was adjusted with silk Lembert sutures. The abdominal cavity was washed out and closed. Drainage of the lateral wound was provided by means of rubber tubes and gauze packing, a counter opening being made into the connective tissue above Poupart's ligament. Although the bladder was drained through the urethra there was an escape of urine from the wound on the third day. The leakage ceased at the end of four weeks and the patient left the hospital three weeks later. The wound was then nearly united, but a sinus remained until early in August when a silk ligature was extruded and prompt healing followed. Apart from the symptoms depending upon the conditions described there was no difficulty except for some pain before flatus was expelled from the rectum on the second day. The highest temperature during convalescence was 101·4° F.; the highest pulse, except immediately after the second operation, was 112. In 1902 the patient wrote that she was very well and that she seemed "to be a perfect cure." In 1903 she had no trouble from the bladder or from the wound. I have not been able to communicate with her recently.

CASE 2.—The second patient, a married woman, aged 25 years, was sent into the Samaritan Free Hospital from the out-patient department on March 21st, 1907. She had an irregular oval swelling in the right groin measuring three inches in length, two inches from above downwards, and standing out from the surface about two inches. It occupied the position of a femoral hernia, being almost immoveable, and most fixed over the canal. It was firm and solid to the touch on its inner side whilst the outer portion seemed to fluctuate. It was not tender on manipulation, there was no impulse in it when the patient coughed, and nothing abnormal was felt in the pelvis or abdomen on making a combined vaginal and abdominal examination. The patient first noticed the swelling on March 7th, a fortnight before her admission. She very positively asserted that until that date the parts had been normal and that the mass was at first small and had steadily increased in size. There was no illness or pain connected with its development but only an aching when the patient had been working hard which ceased when she lay down. There was no rise of temperature or pulse-rate whilst she was under observation and there were no bladder or bowel symptoms. The patient had lost flesh for several months. She had a long loud presystolic and systolic murmur, heard most distinctly over the apex, and a diffuse, very well-marked thrill was felt on palpating the heart region. There was no history of rheumatism or other disease that could be associated with the cardiac condition which had never been investigated before. Its abnormality had no recognised effect on the surgical treatment. The diagnosis of the nature of the

[1] A paper read before the Medical Society of London on Oct. 28th, 1907.

[2] THE LANCET, March 3rd, 1900, p. 596.

swelling was not clear. An omental hernia, a cystic ovary in a hernial sac, hydatids, and a sarcoma were suggested. I cut down on the mass on March 26th and ascertained that it was intimately connected with the femoral ring but apparently it was either not an ordinary hernia or its walls were thickened in a way which the history did not seem to account for. Being puzzled as to the conditions and fearing that I might incise a neoplasm, I opened the abdominal cavity by a short incision in the middle line. With a finger in the peritoneal sac a narrow band of omentum was traced to the femoral canal. Traction on it caused a tugging on the tumour, affecting chiefly its outer portion, and a similar movement on its inner side was felt when the bladder was pulled upon. The canal was enlarged a very little and then the hernia was easily reduced. A piece of omentum about half an inch wide and one and a quarter inches long was quite black, whilst the portion proximal to it was pale and evidently moulded by pressure. These parts were removed. Presumably some fluid escaped into the peritoneal cavity with the omentum, for the hernial sac collapsed to a greater extent than the tissues withdrawn would account for. Any fluid escaping was mopped up and must have been clear serum. The sac was now opened and its walls were found to be much thickened as if from long-continued irritation, the thickening being most marked on its inner side. In order to define the relations of the sac the point of a curved sound, introduced through the urethra, was made to push the bladder wall into the wound, by which means it could be raised almost to the skin level without the slightest strain. The bladder could also be dragged well into view by traction on the sac. An important point was the difficulty, amounting almost to an impossibility, of defining with certainty the outline of the bladder by touch and inspection without the guidance of the sound within it. Apparently its wall had not been nipped in any way as it was quite soft and flaccid, but it was so firmly attached to the thickened base of the hernial sac that it was necessary to separate them carefully by dissection. This combination of a soft bladder wall with adhesion to a thickened sac is somewhat difficult to understand. There was no visible layer of fat between these structures in this case. When the sac was isolated and cut away the peritoneal opening was closed by a purse-string suture and the sides of the canal, which easily admitted my middle finger, were drawn together by a series of buried silk sutures. Before closing the wounds I examined the left femoral ring from the inside and found that my finger entered a cup-like depression. There was no sign of a hernia externally on that side. The highest temperature after the operation was 100° F., and convalescence was uninterrupted.

In this case the history, which was very definitely stated, did not seem to harmonise with the conditions found. Probably the patient had observed only the symptoms of strangulation in an old unnoticed hernia, but it is not possible to be certain that the whole mischief did not develop in the time stated. The opening of the abdominal cavity in the middle line was not essential to the treatment, but practically it added nothing to the risk and it was from the inside that I first discovered the close connexion of the bladder with the hernial sac.

In those cases of hernia in which the bladder is in danger from operative treatment there is seldom any possibility of knowing that it is involved before the operation. The whole bladder has been found outside the inguinal canal, and when a large portion of its wall is affected there may be symptoms pointing to its presence in a hernial sac, but in the great majority of cases there are no such indications. In both my patients the bladder partially overlapped the inner opening of the crural canal. The sac of the hernia protruded on the outer side of the bladder and its tendency was to drag the latter forwards but the force was too slight or the consistence of the bladder wall was too firm to allow of its exit.

It is obvious that in my first case, if there was to be an unrecognised wound of the bladder, it was fortunate that the injury was of considerable extent and quite open to the mucous membrane, for these conditions permitted the free escape of blood which made the diagnosis certain at a very early date and thus led to the immediate treatment which was necessary. In the circumstances of the second case an accident is almost certain to arise unless the surgeon is keenly on the look-out to avoid it. If I had not wounded the bladder on the previous occasion I doubt if anything that I have read would have made me exercise the care necessary to avoid it in this case. No description that I have seen indicates how very soft and easily overlooked the bladder wall may be, and I would urge this point strongly upon the attention of those who have not met with the complication under consideration. The danger is that the surgeon may unwittingly puncture or ligature a portion of the bladder wall, perhaps cutting a piece off, and may then close the canal and the wound in the usual way. Such an operation might perhaps be recovered from with little or no trouble, but the chances in favour of a development of septic complications would be many and the most urgent danger would arise from the possible absence of definite symptoms until an extensive local or a generalised septic mischief developed. There might be no blood in the urine and no sign of a fistula for several days. An overlooking of this accident is therefore an important point for consideration, and the longer it is overlooked the greater will be the danger. A mere incising of the bladder should be comparatively harmless if it is at once or quickly recognised and treated by an accurate closing of the wound, by providing free drainage, or by a combination of these methods.

It is, of course, essential to success that the peritoneal cavity should be effectively shut off from the wounded tissues. In performing a second operation the surgeon ought to assure himself on this point either by a careful recollection and consideration of the various steps of the first operation or by making a small exploratory peritoneal incision. Several of my colleagues were present at the second operation performed upon the patient whose bladder I incised, and there was a difference of opinion upon the propriety of opening the abdomen. I had no hesitation in doing this. I felt that if the peritoneal sac was not implicated an incision into it would do no harm. If it was implicated and carefully treated the patient would have a good chance of recovering from the local conditions which had existed only about six hours. On the other hand, if the urine was escaping into the peritoneal sac the prospects of success from such cleansing as could be undertaken through the crural canal would be very poor. I therefore could not afford to leave anything to chance by throwing away the advantages of a direct investigation. In the inguinal canal the surgeon would, of course, easily see whether the peritoneal sac was closed on opening up the wound, but it might be impossible to obtain this information in a case of femoral hernia without cutting through Poupart's ligament or making an incision above it. I think the median peritoneal incision was preferable.

I do not assert that the abdomen should invariably be explored in the circumstances under consideration, but I think it should be opened whenever there is a doubt as to whether the peritoneal sac is sealed, and if the surgeon has injured the bladder without knowing it he can seldom be quite sure of the relationship of the parts when evidence of the accident arises.

A very important lesson to be derived from the above record is that the surgeon in undertaking a second operation for the treatment of an accidentally wounded bladder ought to assure himself that the peritoneal cavity is closed after, as well as before, the local condition is treated. The ligature on the base of a hernial sac is not applied with a view to its withstanding much manipulation or distension of the wound, and if I had not fortunately discovered that the necessary treatment at the second operation had displaced this ligature in the case in which I wounded the bladder it is practically certain that the patient would have lost her life.

Portman-street, W.

A CASE OF INJURY TO THE BLADDER WHILST OPERATING ON A FEMORAL HERNIA.[1]

BY EDMUND OWEN, LL.D., M.B. LOND., F.R.C.S. ENG.,
CONSULTING SURGEON TO ST. MARY'S HOSPITAL, LONDON.

ON Jan. 19th, 1899, a married woman was admitted into St. Mary's Hospital for the radical treatment of a reducible femoral hernia of the right side which had made its appearance after the birth of her last child (she had also some prolapse of the womb). For four years and a half she had tried to keep the hernia up by wearing a truss, but without success. The hernia, which was of about the size of a walnut, showed itself only when she stood up.

As the woman appeared quite healthy in every other

[1] A paper read before the Medical Society of London on Oct. 28th, 1907.

respect, she was prepared for operation on Jan. 23rd. The wall of the sac was thick. I opened the sac and found it empty, and, having cleared the neck, passed the tip of my right index finger into the neck of the sac whilst my house surgeon tied the neck with a trustworthy silk ligature. I then closed the femoral ring, which was only a quarter of an inch across, by a strong silk stitch which I passed by a small aneurysm needle. On recovering from the anæsthetic the woman complained of pain in the vulva. And, in spite of her having injections of morphine, she did not sleep. On the next morning when the catheter was passed three ounces of blood were drawn off. In the evening (as I was out of town) Mr. H. S. Collier kindly saw her, and, on his replacing the prolapsed uterus, a discharge of brown fluid took place from the os, and the woman said that she felt relieved. The dressings were removed and the wound was seen to be healthy. On passing the catheter 10 ounces of clear urine were withdrawn. On the next day (the 25th) her pulse was running at 150, and her abdomen was slightly rigid and tender. The catheter was again passed and urine was withdrawn. The notes make no mention of the urine being blood-stained or not, but blood was again present in the urine which was withdrawn that evening. A little before midnight she quietly passed away—that is, on the second day after the operation.

The post-mortem examination showed that there had been a leakage of blood into the peritoneum lining the pelvis, and that the neighbouring coils of intestine were glued together by abundant lymph. The bladder, which was large, thin, and flabby, was spread out on either side against the front wall of the pelvis to within three quarters of an inch of the femoral rings, and it was seen that a small piece of it had been caught in the ligature which had been placed around the neck of the sac. The notes further say that there was a ragged opening in the part of the bladder which was nearest to the right femoral opening, and that the loop of ligature which had evidently been placed on the sac, and also upon the small pouch of the bladder, had parted company from them and was lying free near the femoral ring. The notes end with the statement that "the parietal peritoneum was particularly loose, and this fact, together with the large size of the bladder, made an accident peculiarly easy."

I beg to say, however, that I do not quote this expression of opinion of the pathologist as in any way excusing my blunder. But when I heard of the cause of death of the poor woman, I remembered that when I was holding the neck of the sac between my finger and thumb for the house surgeon to apply the ligature, I had felt that there was there a little more tissue than there ought to have been; and that at the same time the thought had passed through my mind that this could not matter, for the tip of my index finger being inside the sac at the femoral ring, there could be no chance of intestine or any other important tissue being hurt when the ligature was tied. The operation-wound was small and deep, and no thought of the bladder being in the way ever passed through my mind. I have on at least two occasions met with the bladder in operating on inguinal hernias, and in one case I opened it as it lay as a narrow pouch in front of the spermatic cord, but I at once stitched up the accidental wound, and no harm followed. It is unfortunate that I had not happened to open the bladder with my scalpel during this operation, for I could easily have repaired the damage at the time. It is also to be regretted that when, after the operation, the catheter drew off bloody urine, and the woman was seriously ill, it did not strike me that possibly the bladder had been damaged.

Dr. Abadie brought a case of this nature before a meeting of the Anatomical Society of Paris in July, 1905, and began his report of it with these words:—"Crural cystocele is very rare." He went on, however, to say that Morin had been able to collect notes of 19 such cases. Abadie's case was that of a woman aged 26 years who, on trying to push open a skylight, ruptured herself in the left femoral region. The hernia became at once strangulated and he operated on it, opening the sac on the outer side and setting free a congested loop of intestine after incising Gimbernat's ligament. He had great trouble in freeing the sac on the inner side, and whilst cleaning it with a pair of scissors as well as he could, urine escaped. On introducing his index finger into the wounded tissue he found to his surprise that it entered the cavity of the bladder. He stitched up the rent and returned the wandering piece of bladder. He left a catheter in the urethra and continued to use it for a fortnight. The case ended happily. He says that of the 19 cases of crural cystocele referred to by Morin, 17 were on the left side.

Great Cumberland-place, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

MEDICAL SECTION.

Complications of Pneumonia.

A MEETING of this section was held on Oct. 22nd, Dr. S. J. GEE, the President, being in the chair.

Dr. HECTOR MACKENZIE opened a discussion on the Complications of Pneumonia. He said that pneumonia was more fatal to the population of these islands than typhoid and the other infectious fevers combined and was responsible for a large proportion of the deaths at the two extremes of life. It was due to a parasite which was very frequently present in the upper air passages of apparently healthy persons. The disease was air-borne and was one against which measures of prevention ought to be adopted. Naturally there was a considerable degree of resistance or immunity to the pneumococcus inherent in the human body. Recent experiments on animals supported the view that pneumonia was a local affection of the lung which the virus reached through the respiratory tract. Pneumonia was a defensive process with the object of preventing an acute bacteriæmia. Where the antibacterial substances were abundant, as in the young, recovery was the usual termination; where they were deficient, as in infancy and after middle life, death was common. The pneumococcus was almost constantly present in the blood in cases of pneumonia, and it was through the blood infection that the microbe reached the distant organs or tissues in which secondary affections arose. Toxæmia was the cause of the graver constitutional symptoms, but it had not yet been possible to produce a serum having antitoxic properties. Of the complications of pneumonia, pleurisy was the most common, while empyema was the most important. The pneumococcus was the cause of empyema in nine cases out of ten. It was difficult to explain why empyema should be more frequent on the left side than on the right. A pleural effusion after pneumonia which required tapping was almost invariably purulent. When an empyema had been successfully diagnosed it should be treated by incision with resection of ribs and drainage. Loculated empyemata, especially those situated between the lobes, should be looked out for. Gangrene of the lung was a rare but almost invariably fatal complication, characterised by prostration, dyspnœa, and high fever, with fœtor of breath and sputa to an almost intolerable degree. Very few cases were recognised during life. When an abscess was suspected an exploration should be made and if it was discovered, a free opening into it should be made. Chronic pneumonia was an unusual and quite exceptional termination of acute pneumonia. Pericarditis was the most frequent complication after pleurisy and was more common than empyema. It was attended with a very high rate of mortality and few cases in which it was diagnosed recovered. At present its recognition was more important from the point of view of prognosis than of treatment. The possibility of pyopericardium should be borne in mind. An extension of the area of cardiac dulness upwards and outwards, with muffling of the heart sounds and feeble pulse, should suggest this lesion. It should be treated by incision and drainage. Even then recovery was the exception. Endocarditis was less common than pericarditis, although one out of every four cases of ulcerative endocarditis seemed to be due to the pneumococcus. The aortic valve was specially likely to be involved and was affected in half of the recorded cases. Physical signs of endocarditis might be absent. It should be suspected when, after the time of the crisis, a remittent type of pyrexia persisted without there being evidence of lesions in other organs or parts of the body to account for it. The prognosis of pneumococcic endocarditis was extremely grave. Their hopes at present rested on vaccine or serum treatment. Peritonitis seldom resulted from pneumonia. When pneumococcal peritonitis occurred it was probably through the stomach or intestines that the microbe had reached the serous membrane. It was more common in children than in adults and in the female

than in the male sex. The fluid exudation was usually thinner than in other forms of peritonitis and the prognosis was more favourable. Otitis media, while commonly due to pneumococcus infection, was quite a rare complication of pneumonia. Meningitis was also a very rare complication which was almost invariably fatal when acute and purulent. A chronic and sero-fibrinous form of pneumococcus meningitis had also been met with. Cerebral abscess of pneumococcic origin had been observed as late as six months after an attack of pneumonia. Neuritis was rare and no case had occurred in his personal experience. The arm on the same side as the pneumonia was most commonly affected. Diffuse neuritis was also met with. Transitory attacks of hemiplegia, probably of toxic origin, had been observed. Arthritis usually appeared as a complication after the crisis. The larger joints—the knees, the hips, and the shoulders—were those most commonly affected. But it was a rare affection and some of the recorded cases might be of rheumatic origin. Affection of the joints was the result of the blood infection and was in most cases accompanied by grave constitutional symptoms. The joint affection was persistent instead of fugitive, as in the case of rheumatism. When there was an obvious accumulation of fluid in a joint the treatment should be surgical. Thrombosis occurred in a small proportion of cases. It was nearly always the femoral veins which were affected and more commonly the left than the right. About 80 per cent. of the cases recovered. Acute tonsillitis and tonsillar abscess, subcutaneous abscesses, cellulitis, conjunctivitis, corneal ulcer, and hypopyon were comparatively rare and less important complications. Nephritis was a more frequent complication in youth than during other periods of life. A large proportion of the fatal cases between the ages of seven and 19 years had had some kidney complications. Often a number of complications were co-existent, pointing to pneumococcal bacteriæmia in a severe form. Such cases were at present invariably fatal. He had no personal experience to bring forward with reference to treatment by means of serums and vaccines. In judging of the effects of such treatment it was important to bear in mind the varying mortality of the disease at different ages and especially the fact that the great majority of young subjects recovered under the usual methods of treatment, while the old and the very young almost invariably died.

Mr. A. G. R. FOULERTON said that in the bacterial treatment of pneumonic infections it was necessary to distinguish between the early stages of acute lobar pneumonia and the less immediately acute stages which followed; in the former case the infection was a pure pneumococcal one and in the latter there was often a secondary infection. In a series of cases of empyema he had found that 75 per cent. of the cases in adults were streptococcal and 25 per cent. were pneumococcal. In young children over 80 per cent. were pneumococcal and less than 20 per cent. were streptococcal. He suggested that in some of the cases in the older subjects where resolution was prolonged treatment by streptococcal vaccine was worth trying. In the early stages of pure pneumococcic pneumonia most physicians would hesitate to administer bacterial vaccine within the first three or four days. A serum treatment appeared to hold out a better prospect of success. It had to be acknowledged, however, that the serum treatment had up to the present been a failure, but at the Middlesex Hospital that was due to the horse serum which they had tried, for whilst horses' serum readily responded to pneumococcic immunisation with the production of anti-bodies those anti-bodies disappeared rapidly from the horses' blood. In his opinion the failure up to the present was not due to any fallacy in the principles on which the treatment was founded but to the common want of knowledge as to the best method of producing the serum.

Dr. W. P. HERRINGHAM, after commenting on a statistical table drawn out by Dr. W. Langdon Brown, medical registrar of St. Bartholomew's Hospital, referred to two cases of lupus erythematosus in which pneumonia occurred as a subsequent infection.

Dr. W. PASTEUR brought forward statistics of the complications of pneumonia at the Middlesex Hospital and then proceeded to give details of two cases of acute dilatation of the stomach complicating pneumonia. He quoted the series of 44 cases of acute dilatation analysed by Campbell Thomson, in which there was associated pneumonia in three cases, to show that the occurrence was not of extreme rarity.

The discussion was then adjourned to Nov. 5th at 5 P.M.

SURGICAL SECTION.

The Growth of Malignant Disease in Man and the Lower Animals, with Special Reference to the Vascular System.—The Diagnosis by the Help of the X Rays of Abdominal Malignant Disease, Subphrenic Abscess, and Appendicitis.

The first meeting of this section was held on Oct. 23rd, Mr. R. J. GODLEE, the President, being in the chair.

Professor E. GOLDMANN of Freiburg delivered an address on the Growth of Malignant Disease in Man and the Lower Animals, with Special Reference to the Vascular System, which is printed on p. 1236 of this issue of THE LANCET.—In reply to a question by Dr. F. J. SMITH, Professor GOLDMANN said that it was impossible for him to say in what cases surgeons should not operate for cancer but the time had come for the question to be studied more carefully. They had the reports of those who performed radical operations for cancer, they also had the reports of others who did not follow that procedure, and the only solution was by finding out how in those cases of rapid recurrence the barrier of defence had been destroyed.

Professor GOLDMANN then gave a demonstration on the Diagnosis by the Help of the X Rays of Abdominal Malignant Disease, Subphrenic Abscess, and Appendicitis. The x ray was merely an aid to diagnosis and was only available in connexion with a full regard to the clinical symptoms of the case and after an exhaustive application of the older methods of examination. He found the x ray most useful in recognising suppuration within the abdominal cavity, in discovering calculus in the appendix, and in the diagnosis of abdominal cancer. The various forms of suppuration which he examined successfully were subphrenic, prævertebral, and pelvic abscess. He confined his remarks to subphrenic abscess. In two cases of appendicitis the ordinary methods of examination failed to prove conclusively that the complication which had arisen was due to subphrenic abscess. On applying the x ray he found the right pleural cavity unchanged in its transparency. The right half of the diaphragm was pushed upwards. The apex of the deep black convex shadow was of a conical appearance. The diagnosis of subphrenic abscess was corroborated by the operation. There were two points of importance to which he would draw their attention. As they knew, subphrenic abscess led to secondary empyema. In his first case that condition had already taken place and yet the presence of sero-purulent fluid in the pleural cavity did not interfere with the distinctness of the subphrenic shadow on the photographic plate. Then, again, the pyothorax subphrenicus, as Leyden had termed it, was often a pyo-pneumothorax. In such cases the gas contained in the abscess naturally modified its appearance on the skiagraph. In order to avoid errors in diagnosis due to an abnormal supra-hepatic dislocation of the bowel, such as Béclère of Paris had reported, it was imperatively necessary to take more than one photograph of the case at different times before operation. Although some pathologists considered that a calculus in the appendix was of no material consequence in the history of appendicitis, yet surgical experience proved that in 55 per cent. of those cases of so-called chronic appendicitis, in which an acute attack occurred, gangrene or perforation of the organ was associated with a calculus. Hence he considered it of great diagnostic value to determine whether the appendix contained a calculus, especially in doubtful cases where the surgeon was dependent upon the complaints of the patient or the history of a previous attack, before deciding upon an operation. In the first case of his own a patient was brought to him with all the symptoms of a retro-peritoneal growth. His first medical adviser gave him a report of appendicitis dating several weeks before the patient's reception at the hospital. For diagnostic purposes he cut down upon what appeared to be a growth and found in its centre a small cavity containing fæcal pus and a calculus. On re-examining the first skiagram which he had taken of the patient he found the calculus clearly marked in the sacro-iliac region. On several occasions he had been able to confirm his first experience. Calculus in the appendix was easily discernible. Before diagnosing appendicular calculus it was essential to exclude everything which gave rise to the so-called pelvic blotch, a subject so fully discussed at the last International X Ray Congress. It was necessary, above all things, to differentiate between calculus of the appendix and that of the ureter. If they exposed a cancerous organ, such as the mammary gland or even the liver, to the x rays they found that the growth

absorbed the x rays much more powerfully than the surrounding tissues. The area of cancer appeared as a dark space on the plate. Its various roots, even the secondary deposits in the axillary glands, were clearly visible. But if they were to make use of that fact without adequate preliminaries in order to diagnose cancer of the abdominal cavity their results would be unsatisfactory. In order to achieve the object in view they must endeavour to accentuate the contrast between the growth and its surroundings. That was easily achieved by giving the patient an aperient and subsequently inflating his rectum with air, a procedure borne by the patient without any discomfort. The inflated air rapidly spread along the gut as far as the ileo-cæcal valve. Under those conditions the abdominal cavity became perfectly translucent for the x rays and cancerous growths showed most distinctly. In his first case a patient was brought to him with the symptoms and history of cholelithiasis. On examining he found a tumour in the region of the gall-bladder, pointing conically below the hypochondrium; it was not tender on touch and very hard. As soon as the x rays revealed a dark shadow corresponding to the gall-bladder he made up his mind that he was dealing with cancer—a fact which the operation, consisting of removal of the gall-bladder, confirmed. The conditions in his second case were very similar to those of the first, with the only difference that the tumour seemed nodular and of irregular shape. It was clearly definable on the photographic plate. Subsequent operation showed that a growth originating in the duodenum had led to extensive adhesion and cancerous deposits in the gall-bladder. Finally, he mentioned a case of chronic intestinal stricture which the x rays proved to be due to a growth occupying the ileo-cæcal valve. He opened the abdominal cavity and found a tumour which both in size and position corresponded exactly to the shadow on the plate.

A cordial vote of thanks to Professor Goldmann, proposed by Sir WILLIAM S. CHURCH and seconded by Mr. HENRY MORRIS, was carried by acclamation.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION.

Presidential Address.—Scientific Treatment of Dyspepsia.

The first general meeting of this section was held on Oct. 22nd in the Apothecaries' Hall. The minutes of the last general meeting of the Therapeutical Society having been read Dr. F. H. BURTON-BROWN, the PRESIDENT of the section, read a short paper containing an account of the Therapeutical Society, of its origin and rise, of the work which it had accomplished, and of the reasons which led to its dissolution and its reconstruction as the Therapeutical and Pharmacological Section of the Royal Society of Medicine. A vote of thanks was unanimously accorded to the President.

Dr. ROBERT HUTCHISON then opened a discussion by reading a paper on the Scientific Treatment of Dyspepsia. He emphasised in particular the need for more accurate classification of cases of dyspepsia if progress was to be made. He gave it as his opinion that although diet was of use in the treatment of dyspepsia, the most efficient means were to be found in drugs; of these he recommended especially bismuth and the alkalies. Ferments he seldom prescribed. The most difficult cases to treat were those where there was motor insufficiency; of the benefit of electrical treatment he was still doubtful.—In the ensuing discussion, Dr. S. H. HABERSHON, Dr. G. HERSCHELL (who advocated in particular the use of electrical treatment), Dr. H. C. CAMERON, and Dr. J. GRAY DUNCANSON took part.—A vote of thanks to Dr. Hutchison concluded the meeting.

MEDICAL SOCIETY OF LONDON.

Cases of Injury to the Bladder whilst Operating for Femoral Hernia.

A MEETING of this society was held on Oct. 28th, Dr. J. K. FOWLER, the President, being in the chair.

Mr. J. D. MALCOLM read a paper on a Case of Injury and one of Exposure of the Bladder in Operations for Femoral Herniæ; Recovery in Both Cases, which is printed at p. 1241 of this issue of THE LANCET.

Mr. EDMUND OWEN read a paper on a case of Injury to the Bladder whilst Operating on a Femoral Hernia, which is printed at p. 1242 of this issue of THE LANCET.—Mr. J. LANGTON said he had unwittingly wounded the bladder in one case out of many hernias which he had seen in the course of 43 years. In that case he had sutured the aperture.—Mr. A. E. J. BARKER recalled a case in which he had recognised the bladder in a femoral hernia and reduced it. He considered the treatment adopted by Mr. Malcolm to be correct.—Mr. C. G. WATSON narrated a case like that described by Mr. Owen in which the patient died.—Mr. JONATHAN HUTCHINSON, junior, said he had seen in 800 operations for hernia a fair number of protrusions of the bladder and had been unlucky enough to wound it in one case.—Mr. V. WARREN LOW described how at an operation for hernia a lateral pocket of the bladder had been opened and sewn up.—Mr. H. CURTIS exhibited diagrams indicating an explanation of the occurrence; unfortunately, these were not handed round for inspection.—Mr. A. CARLESS said he had had only one case in which the condition was recognised after he had operated for hernia. He reopened the wound and carried an incision up to the middle line through Poupart's ligament; this enabled him to recognise a rent in the bladder which he repaired and the patient made a successful recovery.—Mr. T. H. KELLOCK emphasised the severity of the symptoms that accompanied the accident.—Mr. MALCOLM, in the course of his reply, mentioned that the cause of the ligature round the neck of the sac slipping was because of the muscular tissue in the bladder wall and the dragging of that organ when distended.—Mr. OWEN, who also replied, agreed with the plan followed by Mr. Carless of making an incision upwards and inwards through Poupart's ligament.

LIVERPOOL MEDICAL INSTITUTION.

Acute Hodgkin's Disease.—Extroversion of the Bladder.—Renal Calculus in a Child.—The Personal Factor in Diet.

A MEETING of this society was held on Oct. 24th, Mr. F. T. PAUL, the President, being in the chair.

Dr. W. B. WARRINGTON gave an account of the Clinical Features of a patient suffering from Acute Hodgkin's Disease who died within two months of the onset of the disease. The spleen was considerably enlarged, the glands only slightly so. There were high fever, diarrhœa, and marked anæmia, and violent delirium preceded death. The microscopic examination of the glands showed the typical structure of lymphadenoma as described in the writings of Reed, Andrews, and others. Dr. Warrington alluded to the classification of the acute glandular enlargements.—The PRESIDENT, Dr. J. H. ABRAM, and Mr. R. W. MURRAY discussed Dr. Warrington's note.

Mr. MURRAY related two cases of Extroverted Bladder, in which he had transplanted the ureters into the rectum. In one of the cases he had, ten years previously, performed a plastic operation whereby an adequate covering for the exposed mucous surface of the bladder had been made, but as the absence of a sphincter to the bladder rendered the patient's life miserable it was decided to transplant the ureters into the rectum. The patient died on the eighth day after the operation from ascending ureteral infection. In the second case a similar operation was performed with some success. After operation the patient, a child, aged four and a half years, was able to retain his urine for four and a half hours. For two months all the urine was discharged into the rectum but recently urine had escaped anteriorly from the right ureteral surface of the bladder. These cases were brought forward to emphasise the high rate of mortality following upon such operations, which he thought probably amounted to 50 per cent.—Mr. R. C. DUN agreed with Mr. Murray that the rate of mortality following implantation of the ureters into the rectum or sigmoid flexure was a very high one. In his two cases one patient died from shock in 24 hours after the operation; the other patient lived two years and then died from diphtheria. The child was only seven years old at the time of his death but could then hold his urine for an hour. In a third case of extroversion Mr. Dun had performed the first part of Lilienthal's operation but this had resulted in the patient's death.

Mr. DUN reported a case of Uric Acid Calculus successfully removed by operation from a child, aged six years. The symptoms had been indefinite—slight pain in the hypogastrium and hæmaturia. These symptoms were not aggravated by movement. While under observation the

hæmaturia was so slight that it could only be detected by microscopic examination of the urine. There was no enlargement of the affected kidney. An x ray photograph taken by Mr. C. Thurstan Holland very clearly demonstrated a calculus in the right kidney. Mr. Dun drew attention so the rarity of this condition in children and to the indefinite nature of the symptoms in the case under consideration. He emphasised the importance of radiography as an aid to diagnosis.

Dr. C. J. MACALISTER read a paper on the Personal Factor in Diet in which he commented upon the great variations which existed in the dietetic requirements of individuals. He referred to his experiences among the boys of a large industrial school and pointed out the fact that collective dieting, although suitable enough for the majority, proved that there was a small minority of people who could not live healthily on conventional lines. He pointed to the frequency with which metabolic diseases occurred and said that in many cases they resulted from the introduction of foods which although suitable for people having perfect metabolic capabilities were harmful to those in whom they were imperfect. Dr. Macalister directed attention to the complex and mixed character of the human diet and to the fact that the amount of animal and vegetable food required by different people varied considerably. With reference to these latter he mentioned a case of a man who by instinct and habit was a pure vegetable feeder and in whom there was a well-marked pair of adventitious mammillæ. He was a strong, athletic man, a particularly fine swimmer and full of physical and mental energy, and he certainly thrived, and thrives to this day, without taking flesh of any description. The polythelia, together with the metabolic peculiarity present in this case, had suggested to Dr. Macalister the possibility of a reversion to some ancestral type of vegetable feeder which might be present in this and kindred cases. He thought that the appendix was another vestigial organ, functionless in the wholly developed but which might be very useful to those perhaps less perfect people in whom it was long and well developed, sometimes resembling the organ as seen in the herbivorous anthropoid apes, and he suggested that some cases of appendicitis might result from the constant introduction of unsuitable fuel into the furnace of the economy.—Dr. T. R. BRADSHAW said that the practical outcome of the paper was to confirm the adage, "What was one man's meat was another man's poison." The accepted views on dietary were not satisfactory. The physician who laid down rules for diet was too prone to be guided by his own likes and dislikes. Chittenden's experiments to show that the accepted minimum of food was too high were confirmed by clinical observation. He quoted the case of an elderly lady with pyloric stenosis who was liable to kinking whenever the stomach was distended. For the past six years she had lived on about a pint of liquid food a day with the addition of a few biscuits and had maintained her nutrition and was able to take gentle exercise.—Dr. W. CARTER drew attention to the observations of Mr. W. North communicated to the Royal Society by the late Sir J. S. Burdon-Sanderson. Mr. North said that the gist of the whole matter was that they had to deal with a machine which had a marvellous power of accommodating itself to the work put upon it, which rendered the problem so complicated that the hope of finding any explanation of the phenomena observed was somewhat distant. One man would do an amount of work upon a given diet which to another man would be simply impossible. If the signs given by Dr. Macalister as possibly indicating a partial reversion to an earlier stage of evolution were found on further investigation to be trustworthy they would have a valuable clue for the dietetic treatment of many cases.—Dr. R. E. HARCOURT, Dr. WARRINGTON, Dr. A. G. GULLAN, and Dr. OWEN T. WILLIAMS also spoke.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Oct. 15th, when Mr. H. Shackleton, the President, gave his address. After thanking the members of the society for electing him President he went on to say that though not an old man in the ordinary sense of the word yet he had lived through the period which had witnessed the complete revolution of medicine, surgery, and midwifery. As regards surgery he had watched the development of abdominal surgery in personal contact with McGill and Mayo Robson. The former was the pioneer of all suprapubic operations, in spite of the claims of certain Indian workers. With regard to Mayo Robson, no abdominal organ had escaped his attention. Turning to the side of medicine, he was bound to admit that he had seen little improvement and a good deal of degeneration. The old gentle, cheery, methodical family doctor had disappeared and he was a great loss. He did not, however, in the least wish to belittle the efforts which had been put forth in that department which was called preventive medicine. A great deal had been heard lately about the poverty of the profession and he would like to say a few words on that subject. Why should the profession of medicine be the only one to be exploited for the benefit of the poor, the improvident, aye, and even the rich? They were expected to be courteous to all, though rudely treated; to be generous, though ill-paid; to be honourable in all their dealings, though not honoured; and to be patient when imposed upon or defrauded. The President then made a few remarks about coroners and inquests and said that in his opinion all coroners should be medical men.—Dr. F. W. Goyder then read a short paper on Retro-pharyngeal Abscess, dwelling chiefly on the differential diagnosis of the acute and chronic varieties and their treatment.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Oct. 18th, Dr. J. Walker Downie, the President, being in the chair.—Dr. Carter showed a case of Pemphigus Vulgaris in a girl aged three years. After preliminary itchiness the eruption came out suddenly in the back and legs, neck, head and arms, and sides of trunk; but none on the palms of the hands or the soles of the feet. The axillary, cervical, and inguinal and femoral glands were enlarged and tender. Fluid from the vesicles contained polymorphonuclear leucocytes and diplococci epidermidis albi. Blood films showed slight leucocytosis (increase of polymorphs) but no eosinophilia.—Dr. J. Stoddart Barr and Dr. J. Rowan reported the results of their investigations into the Frequency and Significance of Optic Neuritis and other Vascular Changes in the Retinæ of Patients suffering from Purulent Otitis Media. The eyes of 100 consecutive cases of purulent otitis media (mostly chronic) were examined at intervals of several months. 72 showed more or less vascular engorgement in one or both fundi, amounting in six cases to distinct optic neuritis. The 72 cases were reduced to 27 by eliminating all cases in which eye-strain or errors of refraction might have caused the vascular changes. It was found that those cases associated with vascular changes were specially severe and persistent as compared with cases not showing an abnormal vascular condition of the eye. The lesson to be learned was that cases showing vascular changes in the fundus should be closely watched and the radical mastoid operation performed early. If, however, the vascular changes tended to clear off, especially with improvement in the ear condition, or, if the fundus was normal, then a more favourable response to conservative treatment was to be looked for. The eyes should be examined in all cases of middle-ear disease.—Dr. A. Maitland Ramsay gave a demonstration on Ocular Tuberculosis by means of paintings shown with the opaque projector.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Oct. 10th, Dr. G. Thomson of Retford, the President, being in the chair. He delivered his inaugural address on Physiologic Therapeutics for the Normal and Undegenerate. He said that he wished to refer to the subject of physiologic therapeutics. The intellectual and wealthy classes would no longer be satisfied with treatment which consisted of a box of pills, medicine, and liniment. Were medical men excluded from treatment by suggestion? Must they give no attention to mechano-therapy? He thought that many sensible people bore animosity against the profession on account of their neglect of such matters. Medical men had finally to take up balneology after it had been exploited by quacks. The same applied to prophylaxis, personal hygiene, sick-nursing, thermotherapy, climatology, and electro-therapy. Though it seemed a great deal of extra knowledge to acquire yet it was necessary. How useful it was to be able to fall back on climatology, otherwise "a change of air." But he had not time to enter into more details about the abnormal and degenerate. They got much attention from all—police, philanthropist, scientist. Much less was done for the normal and regenerate, but fortunately nature stepped in to slaughter the abnormal, leaving room for the normal. What had medical men to do with the normal? They had to look after their own health. The modern specialisation of all work tended to make it dull and to increase the need of a holiday. The medical man needed a

holiday to prevent him getting into a rut. He should get one even at some sacrifice of his income. It would pay in the long run. Personally he strongly advised an afternoon's golf once a week.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Oct. 16th, Dr. L. W. Marshall, the President, being in the chair.—Dr. H. Ashby of Manchester by invitation read an address on Some Cases of Unexplained Fever in Infants and Children. Pointing out that feverish attacks in childhood presented a perfect mosaic of characters of which no two patterns were exactly alike, Dr. Ashby suggested that many cases of the type under discussion were really due to bacterial action; bacteria produced toxins and toxæmia and this led to increased metabolism and pyrexia. When convulsions occurred the tetanic contractions add to the temperature. Some cases of fever in infants run a course of 14 days or more and are accompanied by indefinite gastro-intestinal symptoms such as slimy stools. Such cases are probably due to the bacillus coli taking on bad ways and giving rise to toxins which are absorbed from the alimentary tract. Cases occurred similar to those described by Holt of New York and John Thomson of Edinburgh where pyuria appeared after the subsidence of the fever, and these were traceable to a "coli-pyelitis" or "coli-cystitis." The urine was slightly cloudy, strongly acid when passed, and free from albumin. On standing it became alkaline, thus arresting growth of the bacilli coli in it. Such cases occurred practically only in girls and infection took place directly by the urethra and not through the intestine. Obscure feverish attacks in older children were sometimes associated with neurotic conditions. Others had been put down to absorption of sugar and starch toxins, others to uric acid. Others, again, were found to have gastric insufficiency with chronic intestinal catarrh, and Pfeiffer's "gland fever" was due to passage of bacteria from the naso-pharynx.

ROYAL DENTAL HOSPITAL OF LONDON.—The annual dinner of the staff and past and present students will be held on Saturday, Nov. 23rd, at the Hotel Métropole (Whitehall Rooms) under the presidency of Mr. E. Lloyd-Williams. Gentlemen either now or formerly connected with the hospital or medical school who may through inadvertence not have received special notice and who desire to be present are requested to communicate with the Dean at the Royal Dental Hospital, 32, Leicester-square, London, W.C.

UNIVERSITY OF OXFORD: WELDON MEMORIAL PRIZE.—Friends of the late Walter Frank Raphael Weldon, M.A., D.Sc., formerly Linacre Professor of Comparative Anatomy and Fellow of Merton College, having offered a sum of about £1000 for the foundation of a prize, with a view to perpetuate the memory of Professor Weldon and to encourage biometric science, the University has accepted the said sum and has decreed the establishment of the prize upon the terms and conditions expressed in the following regulations:—

1. The prize shall be called the Weldon Memorial Prize. It shall be awarded every three years and shall consist of a bronze medal and of a grant of money, being nine-tenths of three years' income of the endowment. 2. The electors to the prize shall be the Vice-Chancellor, the Linacre Professor of Comparative Anatomy, the Waynflete Professor of Pure Mathematics, and three persons appointed by the Hebdomadal Council, who shall hold office for six years and shall be re-eligible. 3. The electors shall have power to appoint, if they think fit, a judge or judges to assist them in awarding the prize. 4. The prize shall in no case be awarded to the same person a second time. 5. The prize shall, subject to the provisions of Clause 4, be awarded without regard to nationality, sex, or membership of any University to the person who, in the judgment of the electors, has, in the six years next preceding the date of the award, published the most noteworthy contribution to biometric science in which either (i.) exact statistical methods have been applied to some problem of biology, or (ii.) statistical theory has been extended in a direction which increases its applicability to problems of biology. Biology shall, for the purposes of this clause, be interpreted as including zoology, botany, anthropology, sociology, psychology, and medical science. 6. If no contribution of sufficient merit shall have been published during the preceding six years, the electors shall at their discretion either direct the investment of the accrued income in augmentation of the capital of the endowment, or assign the grant of money (without the medal) to some person, who shall undertake to carry out some biometric investigation approved by the electors. 7. Eight per cent. of the income of the endowment shall be set aside every year to form a fund which shall be employed for paying honoraria to judges or for promoting the investigation of biometric problems, as the electors may direct. 8. The electors shall have power to make subordinate rules or by-laws for the purpose of carrying these regulations into effect; and Convocation shall have power to alter the regulations from time to time in such manner as it shall deem expedient, provided that the main objects of the foundation as expressed in the preamble to this decree and in Clause 5 of these regulations are always kept in view.

Reviews and Notices of Books.

The British Pharmaceutical Codex: an Imperial Dispensatory for the Use of Medical Practitioners and Pharmacists. By Authority of the Council of the Pharmaceutical Society of Great Britain. London: Published by the Pharmaceutical Society. 1907. Pp. xii.–1422, large medium 8vo. Price 12*s.* 6*d.* net.

FROM a preliminary announcement in our columns[1] our readers will already have gathered certain facts connected with this work. Now the volume is before us we can endorse the favourable opinion then formed from some specimen sheets but we still doubt whether the General Medical Council will consider that the work will "supplement and help to improve and popularise the British Pharmacopœia." Happily, it is not within our province to deal with this question but we have to consider the value of this volume and its relation to the medical profession.

The Codex is issued "by Authority" of the Pharmaceutical Society of Great Britain; its growth has been watched by a committee comprising the present President and many former Presidents of the society, and the labour of compilation has been in the hands of a subcommittee composed of pharmacists, with a distinguished professor of pharmacology, and yet it is addressed to medical practitioners as well as to pharmacists and it is clearly hoped that its circulation amongst the former will be considerable. The scope, therefore, of this extremely interesting volume must be a subject of close investigation.

In a communication to the Pharmaceutical Society on April 16th, 1907, Mr. John Humphrey described the Codex as "the latest attempt to provide a uniform standard and guide for those engaged in the preparation of medicines throughout the British Empire." This description is almost identical with the terms employed in the preface to the British Pharmacopœia of 1867 and in all subsequent revisions, and happily this description is considerably modified in the book at present before us. We are told that the chief aim of the work is the provision of accurate information for prescribers and dispensers, special attention being given to the requirements of those practising in the British dominions beyond the seas. Later we learn that the council of the Pharmaceutical Society, feeling that a work published by the authority of some statutory body was manifestly required, resolved to produce "a book of reference which, as now completed, may fairly be regarded as supplying authoritative guidance to those concerned." It is necessary to be quite clear upon the distinction between the assumption of "authority" by a statutory body and the use of the words "by authority" as conferred upon the General Medical Council by the Medical Act of 1858, Section 54. It must be understood by all concerned that this volume, although it may present accurate information and afford the authoritative guidance of the Pharmaceutical Society of Great Britain, cannot assume or be credited with the position of authority possessed by the British Pharmacopœia.

The scope of this volume is far more comprehensive than that of the British Pharmacopœia, since, in addition, it contains information respecting all drugs and medicines in common use throughout the British Empire, including the principal substances and preparations which are official in the Pharmacopœias of France, Germany, and the United States. How the "common use" has been determined does not appear but a hint is perhaps given by the assertion that in the construction of pharmacopœias numerous medicaments in constant demand are excluded because their value as remedies is not thought to be sufficiently established, while others, again, cease to receive official recognition,

[1] See THE LANCET, April 20th, 1907, p. 1102.

though the demand for them continues. These prefatory remarks explain the size of this volume which includes much that is new and much that is old. Many of the new remedies can be cordially welcomed but many of the old seem to cumber the ground and it is a surprise to learn that they are still in common use. It is distinctly an advantage for a medical man who is perplexed by numerous circulars from different sources to be told on good authority that most of the fanciful names apply to one article with which he has long been familiar; it may save repeated trials of a drug upon which he may have already formed a definite opinion, favourable or the reverse. The synonyms, and the notes indicating practical identity of composition and of action, must serve to favour the work of the dispenser by discouraging the use of many proprietary articles which are largely advertised as though they were new inventions. Much ingenuity has been displayed in coining new names for such articles, thus obviating the necessity of dispensing the drugs of any particular manufacturer; and, lest we forget these new terms, it has already been suggested that medical men should give written authority to use Codex preparations when inadvertently they have prescribed articles by their proprietary trade name. On the other hand, the attempt to revive interest in drugs or preparations which, presumably for adequate reasons, have been removed from the official list, although it may indicate a broad-minded policy and a spirit of tolerance, appears to be a retrograde step. We are told that "it should be clearly understood that the official substances or preparations are intended wherever the names of drugs, chemicals, galenical preparations, and test solutions accord with those of the British Pharmacopœia," but the non-official character of many new and old preparations is scarcely sufficiently emphasised. Prescribers have already been encouraged to secure uniformity by using the abbreviation B.P.C. (British Pharmaceutical Codex) but on the foregoing hypothesis these letters must be frequently applied where B.P. (British Pharmacopœia) would be more correct.

The general arrangement of the Codex has already been described in our columns in the article mentioned above but it may be well to restate that, as in most pharmacopœias, we find a series of monographs in strict alphabetical order, under Latinised names, with English equivalents, and synonyms where such exist. After a brief statement of the sources of the crude drug a detailed description follows, occasionally including distinctive histological features, with particulars of its important chemical constituents. The pharmacological action of the drug is next described, its common uses are mentioned, and notes are given respecting the best methods of prescribing and dispensing the remedy. Last April, on the information then before us, it was announced that "no attempt is made to deal with the subject of therapeutics," but, in addition, now it appears from the preface that "in order to render the work more valuable to medical practitioners much information is given regarding the properties of drugs and the conditions and diseases in which galenical preparations are usually given." It is difficult to harmonise these statements when we find, for example, under Acidum Arseniosum that it is used with great benefit in chronic skin diseases, such as eczema, psoriasis, lichen, and pemphigus; that it is employed with advantage in certain chronic nerve diseases, such as chorea and neuralgia; and that it is also employed, but with doubtful advantage, in chronic rheumatism, leukæmia, lymphadenoma, asthma, chronic dyspepsia, gout and cardiac weakness. Had these statements been made by authority of the General Medical Council some weight would have been attached to them but in a volume published by the Pharmaceutical Society of Great Britain they are out of place.

In the list of galenical preparations, a subject more strictly within the scope of pharmacists, we find that the official range has been greatly extended and many new terms have been devised. Some of the terms facilitate the description of articles in common use under English names, others appear to have been culled from different hospital pharmacopœias, while some may be regarded as new suggestions for the guidance of medical practitioners and pharmacists. It is impossible to repress a smile at finding solemn descriptions of Balneum Calidum, Balneum Frigidum, and Balneum Tepidum. With regard to the first we are told, "To avoid accidents place some cold water in the bath first and add hot water until the thermometer indicates the required temperature." What "accidents"? To the bath, to the patient, or to the thermometer? The directions for the medicated baths are, however, likely to be very serviceable and the information is not generally included in the education of medical students. The same remark applies to the poultices, inhalations, sprays, and several other groups. Many of these cannot be "dispensed" but they are employed so frequently that many medical men will be grateful for the hints and directions here given.

Throughout the volume definite steps have been taken to encourage the use of the metric system; doses appear in both metric and imperial quantities and the quantities in liquid preparations are expressed in 100 parts. Many of the drugs introduced to give an imperial character are of course derived from the official Indian and Colonial Addendum but this is not always apparent to those who have not this slender volume at hand or who may have forgotten their names. The terms employed are not consistent; some may be "employed as a substitute for" some other drug, some are "used as an equivalent," some are "official for use," and some are "sanctioned for use." With the exception of the recognised term "official" the meaning is ambiguous; it is not clear who has "sanctioned" the use or whether these substances are in common use or demand.

We venture to commend to the careful attention of anæsthetists the monographs upon chloroform, ether, and methylated ether. They indicate that of late years great changes have been made in the processes of preparation and in one case it is evident that there is no present test beyond that afforded by the price. The anæsthetist must trust to the guarantee of the maker when he expresses a preference for a particular chloroform or ether based upon his experience.

The example set in the Pharmacopœia of the United States has been followed by the insertion of monographs dealing with Serum Antidiphthericum, Serum Antipestis, Serum Antistreptococcicum, Serum Antitetanicum, Serum Antithyroideum, and Serum Antivenenosum; also Vaccinum Antibubonicum, Vaccinum Antityphosum (for typhoid, not typhus fever), Vaccinum Antistaphylococcicum, and Vaccinum Vacciniæ. Tuberculinum and Tuberculinum Novum are also described, while the "opsonic index" is mentioned. These sufficiently indicate attention to recent research and the desire to include material of value to medical practitioners. On the other hand, catholicity of interest sometimes leads to curious surprises. Thus, we find that nearly a page is devoted to Sanguis Draconis, Dragons' Blood. At the end of much interesting information it appears that it is sometimes used for colouring plasters (though there is no instance of this in the Codex) but much more largely used for colouring lacquers and varnishes.

It is impossible in the space at our disposal to attempt to criticise the purely pharmaceutical details comprised in this volume. We are informed that they are the outcome of much laborious research and they certainly bear every appearance of care. In a volume of this size, involving alterations up to the moment of publication, some errors are sure to need correction; attention is already directed to some 40

misprints and errors, and we have noted additional printer's errors on p. 1000 and p. 1135. On the whole, however, the work has been published in a highly creditable form and it is furnished with a very satisfactory index of over a hundred pages clearly printed in double columns.

A Text book on the Practice of Gynecology for Practitioners and Students. By WILLIAM EASTERLY ASHTON, M.D., LL.D., Professor of Gynecology in the Medico-Chirurgical College and Gynecologist to the Medico-Chirurgical Hospital, Philadelphia. Third edition, revised and enlarged. With 1057 new line drawings illustrating the text. Pp. 1097. London and Philadelphia: W. B. Saunders Company. Price 27*s.* 6*d.* net.

IT is certainly surprising to find that three editions of this work have been called for in the space of one year from the date of its original publication and this must be a source of considerable gratification to the author. The present edition, like the first, represents the personal experience of Professor Ashton, and as he points out in the preface his book is not a compilation taken from the current literature of the subject. We wonder what length the work would have extended to if the author had included the experience of other gynæcologists besides his own. As it is the present edition contains 1097 pages and 1057 illustrations, and yet if we are to believe what we are told in the preface to a well-known English text-book all the facts of gynæcology can be presented in a volume containing some 500 pages of half the size of those in this voluminous work written by Professor Ashton. There is, of course, much that is of great value in this book but we could wish that the author had taken the opportunity afforded by the issue of a new edition to introduce a little judicious pruning of his material. In place of this he has actually added to the length of the volume. An extensive revision has been carried out and several additions have been made. Amongst others we notice that the old operations for the cure of cystocele by denudation have been replaced by a description of Professor Dudley's operation for the treatment of this condition. The sections dealing with inversion and retro-displacements of the uterus have been rewritten. A new chapter has been added on chorion-epithelioma and in this whilst the description of the disease is on the whole good there is not a single illustration given either of the naked-eye or microscopic characters of these interesting growths, although there are dozens of illustrations throughout the book of instruments, which are repeated over and over again and which could be seen by the reader in any surgical instrument maker's catalogue. Indeed, although the work contains, as we have said, some 1057 line drawings there are no illustrations representing the macroscopic or microscopic appearances of carcinoma or sarcoma of the uterus, or of endometritis, or indeed of any pathological condition. In these circumstances we are certainly justified in saying that the book is very inadequately illustrated in spite of the large number of drawings which it actually contains. As we pointed out in our review of the first edition, the whole represents a large amount of time wasted. There is of necessity a great deal of useful information in this book but it is hidden in a superfluity of words and illustrations which go far to destroy its utility.

LIBRARY TABLE.

The Story of Saint Mary Rouncevall. By JAMES GALLOWAY. Reprinted from the *Charing Cross Hospital Gazette.* Pp. 33.—It has been the recreation of not a few medical men to delve in the records of past ages, and when they have seen fit to present the reward of their industry to their less erudite brethren in such attractive guise as in the booklet before us they have earned a considerable meed of thanks. Dr. Galloway has patiently collected and collated the available information about a great foreign religious house which in the thirteenth and fourteenth century occupied the present site of Northumberland-avenue, and which incidentally gave medical service to that district for which Charing Cross Hospital now provides. It is an interesting record of the cosmopolitan influence of the Church in those days that an offshoot or "cell" of a religious house in the Pyrenees should attain to such wealth and influence in England as did the convent of Saint Mary Rouncevall at Charing Cross. The foundation of the house by the son of the great Earl of Pembroke, its protection by the Plantagenet kings, and its dissolution by Henry VIII., the surrender of its property to whom was the last act of the fraternity, are set forth in full in these pages, which also contain excellent reproductions of two fine old prints of the chapel and hospital, of photographs of the Pembroke effigies in the Temple Church, and of the great seal of St. Mary de Rouncevall, "juxta Cherryng in suburbio civitatis Londini."

Hygiene of the Lungs in Health and Disease. By Professor LEOPOLD VON SCHROTTER. Translated by H. W. ARMIT, M.R.C.S. Eng., L.R.C.P. Lond. Illustrated. London: Rebman, Limited. 1907. Pp. 135. Price 2*s.*—The famous director of the Third Medical Clinic of the University of Vienna planned in this little work "to instruct the lay person on the functions of the respiratory organs and on the importance which a free exercise of these functions possesses for the human organism." We quote from Mr. Armit's translation of the author's preface and we endorse the translator's estimate of the value of the work. The due limits of lay instruction are not easily determined: to teach too much is as idle as to teach too little; but we think that Hofrat von Schrötter has exactly hit the mark. His teaching is, of course, sound and is given in a simple and matter-of-fact way, so that the ordinary educated man should be able to understand all that he says or implies. We hope that the book will be largely read. The prevention of consumption is admittedly one of the great social questions of the day in this country and most of those engaged actively in the work say that the hygienic education of the masses must precede, or at any rate go hand-in-hand with, any organised attempts at stamping out this scourge. Those members of the public to whom Mr. Armit has been able to introduce Professor von Schrötter's book may assuredly be regarded as on the side of intelligent reform.

The Diagnosis and Modern Treatment of Pulmonary Consumption. By ARTHUR C. LATHAM, M.D. Oxon., F.R.C.P. Lond. Third edition. London: Baillière, Tindall, and Cox. Pp. viii.–260. Price 5*s.* net.—There are certain diseases the importance of which warrants the inclusion of special works thoroughly dealing with them in the medical practitioner's professional library, however small it be. In our country at least pulmonary tuberculosis is one of these diseases and it is fortunate that such an admirable monograph as that the third edition of which is under notice is obtainable at so moderate a cost. Dr. Latham has made full use of his extensive opportunities for the study of this scourge of civilisation, and the great lesson that he very rightly imposes on his readers is the necessity for its early recognition and treatment. The book is practical and exhaustive; Dr. Latham includes a brief account of the methods of applying the opsonic index to diagnosis and treatment; he does not consider the method of much advantage in the pulmonary form of tuberculosis. He notices all the methods of treatment that have been advanced in recent years and gives a useful account of the various tuberculins. The account of the open-air treatment is worthy of the author of the prize essay on the erection of the King's Sanatorium.

Conservative Gynecology and Electro-Therapeutics. By G. BETTON MASSEY, M.D., Attending Surgeon to the American Oncologic Hospital, Philadelphia. Fifth revised edition.

Illustrated with 27 plates and numerous engravings. Philadelphia: F. A. Davis Company. 1906. Pp. 467.—The most interesting portions of this work are undoubtedly the sections dealing with the results of electrical treatment of fibroid tumours and the use of so-called cataphoric destruction and sterilisation of the different varieties of cancer affecting the pelvic organs. The author claims that the treatment of fibroids by electricity has more than fulfilled the modest claims of Apostoli. In proof of this statement he brings forward the results at stated periods varying from two to 16 years after the cessation of treatment in 110 cases of fibroid tumours of the uterus treated in this manner. In 75 of these cases the results are said to have been good, in 21 of the patients the tumour having become absorbed, extruded, or destroyed by the electrolysis. In 26 no relief to the symptoms followed and in nine cases the ultimate results were unknown. These figures are certainly very striking. As the author further points out, even in the 25 per cent. of cases in which the electrical treatment fails, at any rate it does no harm and allows other methods to be employed subsequently. At the same time it must be remembered that the figures quoted as to the dangers of the operative treatment of these tumours—namely, a mortality of 25·8 per cent. in 345 operations—is very far from presenting the results of the present day. The latest figures given by Winter are 689 cases of supravaginal abdominal hysterectomy for fibroid tumour with 32 deaths, or a mortality of only 4·6 per cent, not 25 per cent. as Dr. Massey would have us believe. The treatment of cases of carcinoma by the author's method of cataphoric destruction and sterilisation is fully described and illustrated. Out of eight cases in which this mode of treatment had been applied to cases of carcinoma of the cervix two patients died from peritonitis, not a very encouraging result. Of the remaining six cases the details are given of four: in two there was temporary improvement followed by death and in two the disease is said to have been completely eliminated and not to have returned, one patient dying subsequently from pulmonary tuberculosis and the second being well one year after the treatment. The second half of the book is devoted to a consideration of the rudiments of medical electricity. The whole is of interest but we doubt if the author will succeed in convincing the sceptics as to the value of electro-therapeutics in any but a very limited number of gynæcological cases.

The Cathedrals and Churches of Northern Italy. With 81 illustrations, nine in colours. By T. FRANCIS BUMPUS. London: T. Werner Laurie. 1907. Pp. 371. Price 16*s*. net.—Mr. Bumpus is taking all cathedrals under his literary wing. We have seen from his pen "The Cathedrals of England and Wales," while he has also described many of the splendid fanes in Northern France as well as the cathedrals of the Rhine and North Germany. He describes in this beautiful book St. Mark's, Venice, the cathedrals at Verona, Cremona, Modena, Parma, and Milan, St. Petronio at Bologna, and many other buildings as interesting and famous. Mr. Bumpus is evidently not a whole-hearted admirer of Italian Gothic but he is an enthusiastic lover of the beautiful and even while most critical is ready to point out what is admirable. To review such a work as this hardly falls within our sphere. We must be content with saying that there is no better place in the world than Northern Italy in which to take a holiday, no better hobby for a medical man than the antiquarian observation of splendid buildings, and no better guide in such matters than Mr. Bumpus.

JOURNALS AND MAGAZINES.

American Journal of Insanity.—The July number of this journal contains several interesting papers, the first of which is Dr. Charles G. Hill's Presidential address delivered on May 7th last at the sixty-third annual meeting of the American Medico-Psychological Association at Washington. The subject chosen was "How can we best Advance the Study of Psychiatry." This address is followed by two articles on the After-care of the Insane, the first by Dr. William Mabon, medical director of Manhattan State Hospital. He gives a brief *résumé* of the work done in this direction by several committees and associations in different countries and an especially interesting account of the Tokyo Ladies' Aid Society for the Insane. This organisation seeks to assist insane patients and their families and to attract public attention to the subject, and judging by the enumerated table of duties performed by its members the benefits conferred on the recipients are very considerable. This paper concludes with a detailed account of the work done by the State Charities Aid Association. The second paper on the after-care of the insane is by Dr. Robert M. Elliott and deals with the Willard After-care Committee, New York. Then follows a good paper entitled "The Trial of the Insane for Crime, an Historical Retrospect." It is written by Dr. James Hendries Lloyd of Philadelphia and briefly reviews a number of classical cases which have occurred in the English courts during the last two or three centuries. Dr. Thomas W. Salmon gives some interesting statistics concerning the Relation of Immigration to the Prevalence of Insanity, and Dr. W. B. Cornell writes an instructive article on the Cerebro-spinal Fluid in Paresis. This number of the journal contains a full report of the Committee on Training Schools for Nurses. At the meeting of the American Medico-Psychological Association in June, 1906, a committee was appointed "to prescribe a minimum course of instruction for training schools for nurses in hospitals for the insane" and the full text of this is given. It is a most advanced scheme and would appear to err on the side of being too progressive but the committee very properly states "that should it seem to some to include too much" it begs "to suggest that with the advance of recent years in the care and treatment of the sick the minimum of what a nurse should know cannot be small."

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

PERHYDROL (MERCK).
(E. MERCK, 16, JEWRY-STREET, LONDON, E.C.)

PERHYDROL is an interesting preparation, since it represents the introduction for the first time of a concentrated solution of peroxide of hydrogen. According to the mean results of our analysis the strength of perhydrol is equal to 30·40 per cent. of peroxide of hydrogen. This amounts to perhydrol containing as much as 100 times its volume of available oxygen. The disinfectant and deodorant properties of peroxide of hydrogen are well known, while it is non-toxic and non-irritating. It should, however, be neutral or free from acid as perhydrol proves to be. In practice it is recommended that perhydrol should be diluted. In the case of application to the skin it is recommended to use it pure or with twice or three times its volume of water. In grafting, cleft palate, and in brain surgery tampons moistened with a 5 to 10 per cent. solution of perhydrol may conveniently be employed for arresting hæmorrhage. A 3 per cent. solution is said to be equal in antiseptic strength to the 1 per 1000 solution of corrosive sublimate. It is used for the disinfection of suppurating wounds, the cleansing of foul sloughs, suppurating cavities, and in gynæcological practice. Practically the same agent may be administered internally in the form of magnesium perhydrol, a fine white powder, which is prepared in two strengths, one containing 15 per cent. and the other 25 per cent. of chemically pure magnesium peroxide. We have confirmed these figures by

our own analysis. Magnesium peroxide, it is said, has been used with excellent results as an intestinal disinfectant and in the treatment also of dyspepsia, eructations, diarrhœa, and flatulence.

BIOGENE AND BIOGENE PREPARATIONS.

(BONTHRON AND CO., 50 AND 52, GLASSHOUSE-STREET, LONDON, W.)

Biogene is a preparation of pure milk protein, readily soluble in water and containing the normal salts of milk; it is, of course, an excellent nutritive. We have examined biogene biscuits, wafers, and cocoa which, according to our analysis, contained respectively 63·15, 37·04, and 35·28 per cent. of protein. Apart from their high nourishing value due to protein, these preparations also are of service to the diabetic patient, inasmuch as they contain neither starch nor sugar.

(1) CINNAMIC PREPARATIONS; (2) TUBERCULIN TEST (CALMETTE); AND (3) IODIPIN CAPSULES.

(W. MARTINDALE, 10, NEW CAVENDISH-STREET, LONDON, W.)

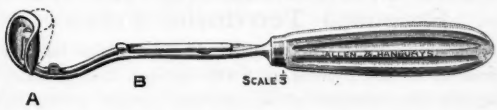
1. The results obtained by the use of cinnamate of sodium in malignant disease have led to the trial of related preparations. Amongst these are the coumarate of sodium which is derived from coumaric or hydroxy-cinnamic acid. Later an acetyl derivative of coumaric acid known as "tylmarin" was suggested. The therapeutic properties of these interesting derivatives of cinnamic acid are indicated in a paper on the Treatment of Cancer by Dr. Lovell Drage which appeared in THE LANCET of Sept. 7th last, p. 690. The treatment rests upon the view that these compounds effect leucocytosis, or an increase in those cells of the blood which are most highly endowed with the properties of living cells. Mr. Martindale prepares the cinnamic derivatives in forms suitable for administration. They comprise the following: sodium ortho-coumarate injection (22 per cent. strength), cinnamic aldehyde capsules, tylmarin tablets, and cachets. It may be noted that tylmarin shows a comparatively high carbolic acid equivalent as regards its power to destroy the bacillus typhosus, while ortho-coumaric acid possesses even a higher coefficient——namely, 6·5. The samples submitted included a specimen of ointment of thorium oleate which has been applied locally in the treatment of malignant disease. 2. From the same chemist we have received a sample tube of tuberculin test which is prepared for the diagnosis of tuberculosis of man by the ophthalmo reaction (Calmette). One or two drops of the liquid are allowed to fall on the conjunctiva of one eye of the patient to be tested. In the case of tuberculosis the lower conjunctiva palpebrarum and the caruncula of the eye will commence to redden from the third hour. After six hours the caruncula begins to swell and the eye becomes coloured by a slight fibrous exudation which gathers in filaments in the inferior conjunctival sac. The maximum reaction is observed between the sixth and thirteenth hour. It is stated that there is no elevation of temperature nor is any pain or inconvenience experienced. The only unpleasantness is said to be the epiphora which disappears, while all again is in usual order after two or three days. The eye so treated can of course be easily compared with the eye which has not received the tuberculin. 3. Iodipin is now well known as a loose compound of iodine and sesame oil which has been used in all those conditions in which iodine is a valuable therapeutic agent with the advantage, however, that iodipin does not produce the effects known as iodism.

THE WINSLEY SANATORIUM.—There were 31 applicants for the appointment of resident medical officer at the Winsley Sanatorium, vacant by the resignation of Mr. E. D. Townroe. At a meeting of the board of management of the institution held on Oct. 22nd three candidates who had been selected were interviewed, and eventually Mr. Alfred Lewthwaite, M.B. Lond., L.R.C.P. Lond., M.R.C.S. Eng., was appointed.

New Inventions.

AN IMPROVED CURETTE FOR ADENOID GROWTHS.

THE use of a curette for the removal of adenoids in preference to the post-nasal forceps has now become an established fact. It was Delstanche who first invented an ingenious hinged and toothed cage to Gottstein's curette. The post-nasal curette generally used has a straight shaft from the catch to the handle, and when introduced behind



the soft palate and swept downwards and backwards the shaft of necessity is elevated, the result being that considerable bruising of the uvula and soft palate is caused. In the instrument devised by me and manufactured by Messrs. Allen and Hanburys, Limited, 48, Wigmore-street, London, W., I have had the shank curved from A to B, with the result that in the large number of cases in which I have used it traumatic inflammation, &c., are avoided.

Brook-street, W. WILLIAM LLOYD.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Oct. 31st, 1829.

We really cannot say, precisely, on what that disturbance, which constitutes inflammation, consists. We know not what is the precise way in which the capillary system of the part is deranged, so as to produce the alteration. Indeed, we are not surprised to find that this is not well understood, when almost directly opposite opinions are entertained, even at this moment, respecting the state of the circulation and condition of the vessels in the inflamed spot. Some persons suppose there is an obstruction to the circulation of the blood; and others, with much greater reason, I think, that the blood passes more quickly through the part. If you open a vein between the seat of disease and the heart, you will get a much greater quantity of blood in the same time, than you would if no inflammation existed. Some have believed that the minute vessels in inflammation are in a state of atony or weakness, while others have supposed them to be in a high condition of excitement. I have alluded to the idea of some, that there is spasm of the vessels; and one circumstance that has been adduced in defence of that is, the suspension of secretion when inflammation is seated in a glandular organ. It has been said, that that arises from spasm in the minute vessels of the part. The ordinary office of the capillary vessels of a gland is to secrete, but, in a state of inflammation, they are unnaturally disturbed; they are too active and busy in their new occupation, to carry on the old one. That there can be no spasm is pretty clear, from the effusion of lymph into the interstices of the part. Unless the vessels were open this effusion could not take place. Being unable to determine the precise nature of inflammation from the changes that take place, or to assign to it a term founded on the state of the vessels which produce these phenomena, we have been obliged here, as in other cases, to denominate inflammation symptomatically. Inflammation, from the term *flamma*—a flame, denotes the heat which usually accompanies it in external parts. Then, if we have been unable to discover the precise nature of inflammation, which is of so common occurrence, and which constitutes so large a portion of all the diseases we treat, you will not be astonished that the attempts to construct nosologies, grounded on the nature of diseases, should have altogether failed.[1]

[1] Excerpt from "Lectures on Surgery, Medical and Operative, delivered at St. Bartholomew's Hospital by Mr. Lawrence, Lecture V., Inflammation."

THE LANCET.

LONDON: SATURDAY, NOVEMBER 2, 1907.

The Medical Service for the Proposed Territorial Force

FOLLOWING rapidly upon Mr. HALDANE'S pledge recently given to his constituents at North Berwick that he would consider the formation of an adequate medical service for his projected territorial force, a summary of the scheme has been issued, a portion of which we were enabled to print in THE LANCET of last week.[1] The summary was accompanied by a series of explanatory details in tabular form which will be found at p. 1267 of the present issue of THE LANCET, the result being that our readers have now before them the plan which it is the intention of the War Office to employ for the organised dealing with the various medical questions which would necessarily arise were this country unfortunately to be invaded. We have already commented favourably upon the wise and straightforward policy which has been pursued by the War Office in the matter. The simple and direct action of Mr. HALDANE, the notable absence of red tape, and the prompt manner in which details of the scheme have followed upon the promise of its publication will strike all our readers, as they have struck us, as being of good omen, and in particular the medical profession will recognise the War Minister's daring in taking the revolutionary view that conceivably medical men may know something of medical affairs. For Mr. HALDANE, to repeat words which we have recently used, has shown by his public utterances that he is prepared to give to the Director-General of the Army Medical Service full support in the development of a national medical service, and we may assume that it must be with his complete approval that Sir ALFRED H. KEOGH has decided to take the medical profession into his confidence. The result of Mr. HALDANE'S wise trust in the Director-General and of Sir ALFRED KEOGH'S willingness to seek the coöperation of his medical brethren is that the scheme bids fair to develop upon proper lines with good opportunities of success. Sir ALFRED KEOGH has now met representative gatherings of medical men at Edinburgh, Glasgow, Aberdeen, Manchester, and Leeds, and at each centre has explained the details of the scheme which our readers now have before them, while inviting the coöperation and support of the medical profession. We publish this week (see p. 1265) the address which he delivered to an important meeting of the medical profession on Friday, Oct. 25th, at the Midland Hotel, Manchester, and we may take it that the points which he then treated with particular stress are those which he intends to bring before the members of the profession at those other centres where he decides to ask them to meet him. The meeting of medical men for the London area is fixed for the afternoon of Nov. 12th at the Royal College of Physicians of London, when Sir RICHARD DOUGLAS POWELL will preside, and we hope, nay, we feel confident, that the staffs of the general hospitals and the Volunteer medical officers who will be invited to attend will display an alert and practical interest in a most important matter.

The arrangements to be made for supplying our territorial force with proper medical service in the event of an invasion of this country during the absence of a large part of the regular forces are not the simple matters of organisation and paid service that the layman or the civilian might think. Such an auxiliary medical service must be constructed somewhat upon military lines as well as upon a strictly scientific basis: it will have to work hand in hand with the army and such part of the Royal Army Medical Corps as remains at home, while it must be able to take full advantage of any flexibility in its regulations which it will enjoy if only to enable it to represent the science of medicine adequately. We all know that in the stress of war the whole nation would do their best for the country, and past events show that no section of the community is more prompt to display its patriotism than the medical profession. The result of this reliance upon voluntary aid in the hour of need has certainly been to inculcate a belief in official circles as well as in the country at large that in time of invasion there would be, to use the words quoted by Sir ALFRED KEOGH, "lots of doctors" ready to meet all the possible emergencies of a territorial force actually engaged in conflict. It is, however, time that the notion that these "lots of doctors" would adequately meet the situation was abandoned, and Sir ALFRED KEOGH and Colonel W. COATES, R.A.M.C. (Vol.), show how necessary it is for us all to change our views absolutely upon this point. This country is not likely to be invaded unless there are circumstances engaging the attention of our army abroad—that is to say, until after we have as a nation undergone considerable anxiety and possibly some privation. The inevitable rise of prices would be attended with a vast increase of sickness and the result would be that at the time when the territorial force was compelled to fight the civil hospitals would be absolutely crowded already with sick. Any idea that the ordinary supply of beds in our voluntary hospitals and in our infirmaries, a supply that in times of peace and plenty is none too profuse, would meet the demands laid upon them by a territorial force actually in the field is absurd. Again, hospital treatment of the sick is not the only duty, or even the most important duty, which would fall upon the medical officer attached to our territorial force. The calls of preventive medicine would be even more urgent. The sanitation of the camps, the warding off of epidemics, the provision of wholesome food, have also to be considered, as well as the difficulty of deciding what men are fit and what men are unfit to fight, who can return to the ranks now, who can return to the ranks later, and who never can return to the ranks at all. These are things which we now know by experience must be thoroughly understood by the medical officer in time of war, and they are things in which the civilian practitioner must have a certain amount of regular and organised instruction if he is to fall easily and naturally into the place where he is found to be wanted. In the view of the War Office, for which Sir ALFRED KEOGH is now publicly responsible, the only way to meet all the demands

[1] THE LANCET, Oct. 26th, 1907, p. 1180.

that would thus be made upon medical service is to create a number of local centres at which provision would be forthcoming for adequate hospital treatment, and at the same time to make a short course of training and instruction obligatory upon the medical officers. The courses of instruction proposed are brief and practical, as will be seen by the official tabular statements; they are designed to insure a general standard of efficiency, so that a homogeneous service of medical auxiliaries may be forthcoming, and looked at from this standpoint they appear to us satisfactory.

The standing objection to conscription in all men's mouths is the dislocation of business; it is urged that where conscription is the rule the young man, at a time when he ought to be pursuing his professional studies or observing his office routine, is taken from his classes or his desk and made to do the routine of military service in a manner that is often not likely to be of much use to him or his country in the long run. The question of conscription is here not under discussion, but certainly the main objection urged to it by the professional and business classes is the irksome and inelastic nature of the military regulations. We therefore call attention to the fact that the scheme for the creation of a medical service in association with a territorial force is free from the hard-and-fast restrictions and the lengthy periods of compulsory attendance at a military centre which make conscription so irksome. Indeed, the critical may say that the scheme, instead of being too tight, is too loose, for the amount of compulsory training to be undergone by the medical corps of the territorial force appears to be left very much to the individuals to determine for themselves. This is a point on which experience may later have something to say, and it is possible that the various medical schools may, as we have already suggested, be able to supply a junior *personnel* to the auxiliary medical corps whose avocations will not be impeded by some stricter course of training; but we have nothing but commendation for the spirit in which the suggested regulations have been drafted. Some training so as to make the medical corps a manageable asset in a territorial force is necessary, but Sir ALFRED KEOGH'S view that it is absurd to compel the eminent surgeon or physician who is connected with a great institution, a great hospital, or a great university to come out every year and to go into camp to learn his duties is absolutely sound. The Director-General desires to have placed at his disposal for the use of the country the services of our leading physicians, surgeons, and sanitarians, and we believe that he will get them, mainly because of the frank manner in which he has come to medical men for professional coöperation.

Tuberculosis in Prisons.

IN his annual report for the year 1906-07 recently noticed in these columns[1] the medical inspector of prisons, Dr. HERBERT SMALLEY, refers at some length to the subject of tuberculosis in the prison population. Apart from the special interest which it possesses for those who are concerned with penal administration, this question must appeal also to a wider public as a very important aspect of what is at the present moment one of the most urgent problems of preventive medicine. Much of the statistical evidence which Dr. SMALLEY has collected for the purposes of his argument has not been hitherto accessible in so convenient a form: this portion of his report therefore merits a degree of attention such as is not invariably accorded to those arid recitals of statutory information with which we are familiar in official publications. In the matter of infectious disease prisons in all civilised countries have long lost the evil preeminence which they once held; far from being hotbeds of dysentery and typhoid fever as they were in the not very remote past, they can nowadays challenge comparison with institutions of the best hygienic repute for their immunity from these diseases; and though "gaol fever" still lingers in common parlance as a synonym of typhus fever the sinister association of words has now a merely historic significance. But while they have thus outlived their evil renown so far as the acute infectious diseases are concerned they still lie under some suspicion as propagators of tuberculous infection. In many countries evidence has been brought forward to show that the incidence of tuberculosis in the prison population is very excessive and responsible writers in the medical press of Germany have even gone so far as to assert that prison-bred pulmonary tuberculosis is one of the chief sources of tuberculous disease in that country. We are not concerned here to inquire how far this charge is justified as regards the German prisons but the mere fact that it should have been made may well direct our attention to the possibility of similar dangers arising in our own penal institutions. For this reason the inspector's authoritative statement of the facts concerning tuberculosis in the English prisons may be welcomed as peculiarly opportune.

Dr. SMALLEY prefaces his discussion of the question by pointing out that in any statistical inquiry having as its end to ascertain the influence of imprisonment on the development of tuberculous disease, the only admissible evidence is that referring to the convict population, for it is only in the convict prisons that this influence is operative over a sufficiently long period to allow of its effects becoming manifest. The statistical data relative to the local prisons, where the sojourn of the individual prisoner averages but a few days, would be clearly valueless in this connexion and we may therefore dismiss them from consideration, merely noting that so far as they go they confirm the antecedently probable view that the incidence of tuberculosis amongst the inmates of local gaols is practically the same as in the general population living under urban conditions. Confining our attention, then, to the convict population, or rather to the male population in the convict prisons—for in this country the number of female convicts is too small and deaths from tuberculosis are too rare amongst them to afford any material for statistical purposes—we find that in the year 1906-07 two convicts died from tuberculosis and two others were released suffering from the same malady. If now it be assumed, so as to take the least favourable view, that the prisoners released would otherwise have died during the year the death-rate from tuberculous disease, calculated in terms of the daily average population, works out at 1·38 per 1000. The figure for the preceding year was 1·67 per

[1] THE LANCET, Oct. 12th, 1907, p. 1039.

1000 and the average rate for the five years 1903–07 was 1·17. Absolutely considered, of course, these figures do not convey much meaning; it is only when we bring them into relation with other data that we are in a position to judge whether the condition of things which they indicate is satisfactory or the reverse. For this purpose there are three standards of comparison to which we may have recourse; we may compare the actual mortality from tuberculosis in the prison population with the mortality in previous years; or we may compare it with the mortality in the free population at home; or lastly, we may contrast it with the death-rate from this cause in penal institutions of the same order in other countries. The material for these several comparisons is furnished in Dr. SMALLEY'S report but before we deal with it it may be well to point out, as is very properly done in the report, that since the population of the convict prisons is relatively small, averaging, in fact, something under 3000, conclusions based upon its statistics are open to some risk of fallacy. This consideration, however, though it must, of course, prevent us from treating these conclusions as fully trustworthy in all their details, need not debar us from accepting as substantially true the broad indications which they afford regarding the question at issue, especially since, as we shall see, these indications, though drawn from different sources, are mutually confirmatory.

Considering, in the first place, the comparison with convict prisons abroad, Dr. SMALLEY quotes from the *Comptes Rendus* of the last International Penitentiary Congress (Budapest, 1905), at which the question of tuberculosis in prisons occupied a very prominent place, some statistics showing the death-rate from tuberculous disease in the convict populations of a number of the chief European countries. The figures, which are calculated on the same basis as the mortality rates in the English prisons—viz., in terms of the daily average population—are as follow: Belgium (1894–98), 2·7 per 1000; Prussia (1901–02), 5·3 per 1000; Saxony (1901–02), 9·0 per 1000; Bavaria (1901–02), 10·0 per 1000; France (1902), 12·0 per 1000; Austria (1898–99), 16·0 per 1000; and Hungary (1894–1903), 19·1 per 1000. In comparing these figures with the tuberculous death-rate in the English prisons (1·17 per 1000 in the period 1903-07) some allowance must, of course, be made for the fact that in the several countries referred to tuberculosis is also more prevalent in the free population than is the case in England but that this can only account to a very slight extent for the lower rate in the convict prisons here is clearly shown by the fact that whereas abroad the incidence of tuberculosis is admittedly far heavier amongst prisoners than in the general population, the reverse obtains in this country. On this latter point Dr. SMALLEY has brought forward evidence which, while it appears to be incontrovertible, is yet of so remarkable a character as to suggest not only that the hygienic conditions of convict prisons must be exceptionally good but also that the inmates of these institutions must be recruited from the healthiest classes of the population and that serious crime, far from being the refuge of the weakling and the inefficient, is a career which attracts the most robust members of the community. This, at least, is what we may be tempted to think when we learn that the "comparative mortality figure" for pulmonary tuberculosis in male convicts, calculated with the aid of Dr. J. F. W. TATHAM'S factors on the average of the deaths in the period 1903–07, works out at 106, while according to the last census the corresponding figures for the male population between the same limits of age in the country as a whole, in London, and in the industrial districts are respectively 186, 262, and 202. So much for the comparison of the tuberculous mortality in the English convict prisons with that in prisons in other countries and with that in the free population at home; we have next to ask whether the position of the convict population in this respect was as good in the past as it appears to be now. To determine this point Dr. SMALLEY contrasts the death-rate from tuberculosis during the last five years, 1903–07, when, as stated above, it amounted to 1·17 per 1000 of the daily average population, with that in the preceding five years, 1898–1902, when it stood at 2·0 per 1000. While disclaiming any wish to infer too much from the oscillations of the death-rate of so small a population and within so limited a period, the inspector justly remarks that it can hardly be regarded as a mere coincidence that the fall in the tuberculous mortality shown by these figures—a fall of over 40 per cent.—should have followed immediately on the adoption of a series of measures specially designed to obviate the spread of tuberculous infection amongst prisoners. These measures, in addition to the ordinary precautions relative to the segregation of prisoners actually suffering from the disease with a view to their treatment under conditions approaching so far as is possible in prisons to the *régime* of the sanatorium, include a variety of hygienic reforms tending to secure a better provision of light and air and, what in this connexion is of particular importance, an adequate supply of food. With reference to this latter point, it is specially noteworthy, as bearing on the decline in the tuberculous death-rate since 1902, that in the course of the previous year a new scale of dietary was introduced into the convict prisons in which the amount of fatty elements, previously deficient, was brought into accord with physiological needs. In view of the notorious influence of the state of nutrition in determining the power of resistance to the invasion of the tubercle bacillus it seems natural to assume that the better feeding of the convict population has contributed in no small degree to bring about its decreased susceptibility to tuberculous disease. On this account we may congratulate unreservedly the prison administration on a result which, satisfactory as it is in itself, is still more gratifying because it owes its origin to the abandonment of the mischievous tradition that devitalising influences are an essential part of the treatment of the criminal.

The Identification of Blood-stains.

AMONG the investigations which fall within the province of forensic medicine the recognition of blood-stains forms one of the most important problems demanding solution. It is true that the older writers on medico-legal matters did not devote much attention to this question which was first brought prominently forward and to some extent elucidated by the father of forensic medicine, ORFILA, but it seems probable that the silence of the older writers

was merely due to a lack of perception of the difficulties involved. In recent years the amount of attention directed to it has amply compensated for any previous neglect and the newest discoveries in pathology have been pressed into the service of the medico-legal investigator. So recent indeed is much of the most important work that some of the most valuable tests have scarcely found their way into the text-books and we owe a debt of gratitude to Major W. D. SUTHERLAND, I.M.S., who has embodied in a handy volume[1] the results of his investigations into the literature of the subject and of his own comprehensive experiments directed to gauging the real value of the many reputed tests for blood. An authoritative and concise statement of all that is at present known in this field is thus placed at the disposal of those members of the medical and the legal professions who are called upon to take part in the administration of the criminal law and the book, we think, will be found to be indispensable to such.

The immense number of different tests which have at one time or another been brought forward as criteria of the presence of blood sufficiently indicates the degree of difficulty which is inherent in the research, though the complex nature of blood itself, consisting as it does of fluid plasma on the one hand and of formed corpuscles on the other, each of which elements offers different facilities for identification, is doubtless another cause for the multiplicity of tests proposed. So far, indeed, the leucocytes have not rendered any assistance to the investigator but both plasma and erythrocytes form the basis of important reactions by which they can be identified. It is seldom, indeed, that the corpuscles themselves are sufficiently well preserved in the stains which form the subject of inquiry for their morphological characters to afford a satisfactory criterion, though cases occur in which it is possible even in dried material of some age to identify the oblong nucleated erythrocytes of birds or amphibia and to decide at once that the stain is not due to mammalian blood. Far more often it is by the recognition of the presence of hæmoglobin that a stain is identified as blood, the determination of the species of animal from which it is derived being made by means of reactions dependent on the properties of the plasma. Dealing first with the tests for hæmoglobin, we have to recognise that the strictly chemical tests are on the whole disappointing. Experience has shown that the well-known reaction with guaiacum and ozonic ether is open to so many sources of error that it must be regarded as worthless for forensic purposes; at the most it may supply negative evidence. The same criticism applies to the colour reaction given with aloin and oil of turpentine. Of rather greater value as a preliminary method of exclusion is the reaction which occurs when peroxide of hydrogen is added to blood or to hæmoglobin; if the white foam formed by the interaction of these materials is absent the stain is probably not due to blood. One chemical test, however, holds its own as a valuable mode of procedure—that is the formation of Teichmann's crystals of hæmatin chloride on warming the suspected substance with acetic acid in the presence of a trace of sodium chloride. The evidence afforded by the spectroscope is conclusive in favourable cases but it is beset by many difficulties in actual practice. The spectra of hæmatin, for example, are not well defined as a rule, and even the definite bands of hæmochromogen need an appreciable amount of hæmoglobin for their satisfactory identification. It is upon this test, however, together with the formation of Teichmann's crystals, that the greatest reliance must be placed in determining the presence of blood in a given stain.

The results of recent research have placed at the disposal of the medical jurist very delicate methods of differentiating human blood from that of other animals and indeed of distinguishing between the blood of different animal species. These methods depend on the properties possessed by the serum of an immunised animal of acting upon the substance employed to induce the immunity in the direction of agglutinating, precipitating, or actually destroying the elements contained in it. If, for example, the blood of a goose be injected into a rabbit, the serum of this latter animal is found to acquire the properties of agglutinating and destroying the corpuscles of goose's blood in a test-tube, while it also forms a precipitate when brought into contact with the serum of the bird. The destruction of the corpuscles (hæmolysis) is brought about by the interaction of two separate bodies present in the serum of the immunised animal—one, the alexine or complement, being originally present in the blood before treatment, and the other, the copula or amboceptor, being formed in response to the injections of foreign blood. The latter body acts as an intermediary and attaches the complement to the corpuscles, thus enabling it to exert its destructive effects upon them. Now the hæmolysis brought about in this way is specific in nature, that is to say, only the blood corpuscles of the animal the blood of which was injected will be dissolved by the serum of the animal so treated; in the experiment quoted only goose's blood will be laked by addition of the rabbit's serum. Similarly only goose's serum will give a precipitate when mixed with this rabbit's serum, the precipitation reaction being also specific. Both these reactions have been employed for the identification of blood. Unfortunately, as already noted, the stains which have to be tested do not often contain intact erythrocytes, so that the application of the reaction of hæmolysis is seldom possible. On the other hand, the precipitation test is usually applicable and is of great value, but it will occur with any albuminous fluid from the same species of animal and does not necessarily prove the presence of blood. Used with the Teichmann test, however, it appears to constitute a satisfactory criterion. A still more delicate test of the same nature is that dependent upon the phenomenon known as fixation of alexine or deviation of complement. This is based upon the fact that the complement or alexine is capable of entering into combination with a number of different amboceptors and their corresponding "antigens"—the injected substances which have given rise to them. The complement can act but once, being then fixed and rendered unavailable for further use. Let us suppose then that we have in one test-tube a mixture of the blood corpuscles of some animal with a fluid containing amboceptors capable of uniting a certain complement to them and thus producing hæmolysis, and in another tube a serum containing the needed complement. Mixture of the two will then produce laking of the corpuscles. If, however,

[1] Blood-stains: their Detection and the Determination of their Source. By Major W. D. Sutherland, I.M.S., M.D. Edin. London: Baillière, Tindall, and Cox. 1907. Price 10s. 6d.

we add to the serum containing the complement a different amboceptor and its appropriate antigen, the complement will be anchored to this combination and will not be available to complete the orginal test mixture. A minute trace of the antigen suffices to produce this "deviation of complement" in the solution. Hence if together with the complement there be present an amboceptor capable of attaching it to human serum, a trace of the latter will prevent hæmolysis when the mixture is added to a test solution containing animal blood of some kind and its specific amboceptor. A very delicate test for human serum is thus provided. The actual carrying out of the test is a matter involving careful manipulation and considerable skill but in the hands of an expert, working with suitable control experiments, it is completely trustworthy. The theoretical investigations of recent years have thus found a most important application, illustrating once again the truth that no extension of knowledge can be looked upon as useless but that it is often the researches which are apparently most abstruse and futile that lead in the end to the greatest practical benefits.

London School Children.

IF any doubt could exist with regard to the propriety of the recent strengthening of the Board of Education by the creation of a medical department it would, we think, be effectually removed by a perusal of the report of Dr. JAMES KERR, the medical officer for educational purposes of the London County Council, which has just been issued by the education committee for the consideration of the Council as a whole, and which can hardly fail to lead to some effective reconsideration of the lines upon which that which is called education is even now being conducted. In Dr. KERR'S own words, a point has been reached by his examinations at which the Council is called upon to determine whether it shall take steps to secure "that its younger dependants have a fair chance of properly benefiting by the education offered"; while treatment as a public concern will have to be considered, at least this is Dr. KERR'S view, in respect to certain visual troubles, discharging ears, ringworm, and the care of the teeth, "in which neither the private practitioner nor the hospitals can give any hope of providing sufficient or satisfactory relief for most of the cases requiring it." It would scarcely be possible to frame a more severe indictment of the system under which, for the last thirty-five years, it has been continuously attempted to instruct the children of the labouring classes in subjects which their minds have never been prepared to receive, while everything connected with their physical welfare, with the gradual development through which the brain of the child becomes fitted to grapple with the business of the adult, and all training in the forms of knowledge calculated to make good citizens, have been contemptuously ignored by official ignorance or withheld by official parsimony. The only valid plea under which the State is entitled to interfere with parents in the education of their children is that, without such interference, the children would grow up less capable and less intelligent than they might easily become; less capable of bearing their share in the successful prosecution of the various industries on which the prosperity of all classes must eventually depend, less conscious of their duties as citizens of a great community, and unduly liable to be diverted from these duties by appeals to their cupidity or their passions. The general result of the interference, as it has actually been conducted, is that persons of the schoolmaster order or gifted with a similar type of intelligence, who have seen and admired the results of school education as displayed in the more prosperous classes of society, and have failed to perceive that these results are only attained by building upon a foundation of home example and home training, have attempted or expected to produce them in the absence of all the essential preliminary conditions. The effect of school education thus conducted has been the production of a pyramid balanced upon its apex and tottering to its fall under the slightest stress of adverse circumstance. Even apart from a total neglect of physical conditions there has been no attempt, generally speaking, to cultivate the judgment, to guide the taste, or to instruct in the consequences of conduct; and the increased diffusion of the power of reading has not been attended by any consideration of the material upon which that power was likely to be exercised. No individual parent would consider his duty fulfilled if he omitted supervision in this direction; but the State, after usurping a large share of the parental authority, leaves the accomplishment which it has conferred to be employed upon any mischievous printed matter, though warning and advice might easily be given.

In addition to evils of this kind only too manifest to all who care to observe them, we are now beginning to accumulate evidence of what has long been suspected by physiologists—namely, that a large amount of current "schooling" is directly, and even seriously, injurious to the recipients. The merit of first sounding an alarm in this direction must, we believe, be attributed to Sir JAMES CRICHTON-BROWNE who several years ago strenuously endeavoured to direct attention to the headaches and other forms of illness occasioned by school work of a kind and an amount which were unnatural and excessive in relation to the powers of those from whom it was demanded, but whose warnings did not at the time receive the consideration which was their due. The report now issued by Dr. KERR may be described as the crowning document of a mass of evidence which establishes that, under existing regulations, brain work of an amount and character which might not be injurious to the healthy and the strong, especially if they had been gradually led up to it by early training, is now being required from thousands of children upon whom no early training has been bestowed, and among whom a very large proportion are disqualified from accomplishing it, or still more from turning it to any beneficial account, by reason of defective hearing, defective vision, or defective aeration of the blood as a consequence of adenoid or tonsillary obstructions of the respiratory passages. Dr. KERR presents us with a pathetic picture of the child with defective hearing, who in some districts of London is declared to be the rule rather than the exception, who misses or misunderstands a large portion of what is said to him, and whose eagerness to do his best is a constant cause of overstrain. Defective sight must, of course, be a source of analogous evils; and it follows that among large numbers of children almost the best that can be hoped for from the school is that it may fail to do them harm.

If the medical profession had been consulted by the framers of the Education Acts there can be no reasonable doubt that the dangers necessarily incidental to universal and compulsory school work would have been foreseen; and perhaps as little that those who became responsible for creating them would have shrunk from the responsibilities which, as it was, they light-heartedly consented to incur. They set themselves up in opposition to nature, and nature, as she always does, after suffering them to have their little fling against her laws, is rapidly proceeding to cover them and their works with confusion. It is nevertheless manifest that the country has gone too far to recede and that some means must be found, at whatever cost, of reconciling the demands of education with the laws of health. The only prospect of such finding is afforded by the establishment of the medical department at the Board of Education which, it is hoped, will accomplish, in relation to schools for the poor, at least the amount of regulation in accordance with physiology which the Association of Medical Officers of Schools has been largely instrumental in accomplishing in relation to schools for the comparatively rich.

If the medical profession, say as represented by the Royal College of Physicians of London, had been consulted by the Government responsible for the Education Act of 1871, it is probable that their first warning in relation to it would have had reference to the dangers of the promiscuous aggregation of children; first, as a means of intensifying the diseased or objectionable conditions which might be present in individuals, and secondly, as tending to the formation of centres for the diffusion of infectious disease. In many of the poorer districts of London a large proportion of children are filthy in their persons and clothing, are often verminous, and often have discharging septic surfaces arising from carious teeth, broken chilblains, cuts, scratches, or other forms of injury. When a multitude of persons so suffering are brought together the attendant dangers increase in geometrical progression. As regards the diffusion of ordinary contagious diseases, such as measles, diphtheria, or scarlet fever, Sir SHIRLEY F. MURPHY long ago proved that the schools stand to them in a directly causative relation, the general prevalence of the diseases falling as soon as the school holidays are established and rising again as soon as an incubation period has elapsed after the reopening. It should clearly be one of the most important duties of all education authorities to reduce the risks of school contagion to a minimum, and for this purpose to exhaust every precaution for excluding infectious children and for preventing their return until they have ceased to be sources of danger. So far is this duty from being fulfilled that the Board of Education about four years ago determined to withdraw from schools the Government grant which had formerly been continued on account of scholars who were absent by reason of infectious disease and thus made it the direct interest of managers and teachers to ignore such disease as long as possible and to permit the return of the patients at the earliest possible time. On this subject Dr. KERR has commented in successive reports and he does so even more strongly than before in the one which we have now under discussion. The point is certainly one upon which the new medical department may be expected to speak with no uncertain sound. We cannot take leave of Dr. KERR'S report without an expression of our regret that we cannot bring its abounding detail before our readers or without urging upon them that they should study its pages for themselves. We have met with no more convincing illustration of the effects of the uprising of conceited political ignorance against physiological knowledge; and the conditions which are shown to exist in the metropolis will doubtless be reproduced in many other great centres of population. In contending against these conditions, and in the advocacy of measures calculated to bring them under control, the members of our profession may find opportunities for rendering signal service to the State and for showing by results that wisdom is justified of her children.

Annotations.

"Ne quid nimis."

THE PEOPLE'S BREAD AND BUTTER.

AT the Clerkenwell police-court a baker was summoned recently in respect of two sacks of potatoes found upon his premises by an inspector of the Islington borough council. The case for the prosecution was that these potatoes were for use in the making of bread, in which, as is well known, potatoes are frequently, but not necessarily or desirably, an ingredient, and that in this instance they were in a putrid condition, rendering them altogether unfit for human food. A feature in the case was the evidence of a journeyman baker, formerly employed by the defendant, who had originally given the information upon which the borough council had acted. He described the process of boiling the potatoes in their skins and then squeezing them through a strainer, which was carried out, according to him, on the defendant's premises whenever bread was to be made and he said that the smell had made him sick. His leaving the defendant's service, according to his statement, had been in consequence of his refusal to fry dough nuts in such fat as was provided for the purpose. The evidence of the inspector was to the effect that the potatoes were offensive in odour when he seized them and that moisture was running from them. He also gave evidence as to admissions made by the defendant. Mr. A. E. Harris, medical officer of health, described the potatoes as rotten, diseased, and bruised; he was of opinion that they would be likely to produce illness, especially in children, and that they were totally unfit for food. Evidence was also given to the effect that the defendant's shop was in the midst of a densely populated district inhabited by the poor. Mr. Bros at first passed a sentence of six months' imprisonment but on the application of the solicitor for the defence agreed to adjourn the case for a month. As this may imply that some of the evidence is to be contradicted and as the case is still under consideration we do not comment upon it. In the same week a prosecution relating to butter took place at the Mansion House, in which a person formerly employed by another defendant gave important evidence against his late master. The employer, a grocer, was summoned for selling margarine as butter, his defence being that the sale upon which the prosecution was based was accidental and that some margarine, which he only sold wholesale in quantities of seven pounds and upwards, had been left after one of these larger transactions on the counter, whence it was handed to the inspector's assistant. The evidence of the former employee, who admitted having left after "a row," and also having once served

sentence of a month's imprisonment for larceny, was to the effect that while he was in the defendant's service he had had definite instructions from him to sell margarine, which was kept on the butter-block, to all who asked for butter at 1*s.* per pound. He also deposed that he was ordered to follow this practice with regard to women and children purchasing and with all regular customers whom he thought not likely to prove suspicious but that he was to use discretion in the matter and to serve with butter anyone whom he thought likely to notice the difference. He estimated the trade in margarine carried on upon these lines as amounting to about one hundredweight per week. Three previous convictions under the Sale of Food and Drugs Act, upon one of which he had been fined £20, were proved against this defendant who was ordered to pay a fine of £100 or to undergo, in default of doing so, three months' imprisonment.

THE LUST OF SPEED.

THE recent railway accident at Shrewsbury has brought up the usual variety of theories about the mental condition of the driver of the express, and the public is accordingly much exercised as to questions of strain, sudden access of insanity, cardiac failure, and the like. It appears to us that some of the conditions attending engine-driving are not properly understood and that there are other factors which have an important, if less alarmist, bearing on the subject. *Mollia tempora fandi*, and, if the truth is to be told, it is the lust of speed on the part of the public which postulates the conditions which must occasionally fail and which, when they do so fail, may lead to most disastrous results. There are several reasons for this craving for rapid travelling, though all recognise the dangers which must attend high speed. Some of these reasons are the exhilaration attending rapid motion, the saving of time, the opportunities of living in agreeable surroundings when not at work, the avoidance of monotony and of the fatigue induced by long sitting in cramped positions, and the feeling of satisfaction at annihilating time and space; but, beyond all, there is the desire of "going one better" and of "breaking the record." Whatever be the mode of progression, whether it is mountain climbing, sea voyaging, motor driving, railway journeying, or what not, the impulse to strive for superiority has come to have the force and compelling power of an instinct, and the fact that speed must involve risk is not allowed to interfere with what has become a mental canon—viz., that it will not do to be satisfied with what is good, we must go on from better to better still, and so the lust or desire for the best becomes the mainspring of our lives and of our civilisation. We have daily experience that no danger is so great that men will not take the risk of it if ambition is to be satisfied or wealth acquired, and all that they have a right to ask in committing themselves voluntarily to the care of the people who undertake the management is that all that can in reason be done to insure safety shall be done. *Volenti non fit injuria* is an old maxim, though nowadays the huge sums to which compensation amounts is enough to make the promoters—and this applies especially to railways—take the most elaborate precautions to avoid accidents. Most of the bad accidents occur at night and to express trains, the reasons for which we shall presently explain; but when the enormous number of fast trains that are run is considered the wonder is that mishaps are so infrequent, though that there are many hair-breadth escapes of which the public knows nothing is common knowledge to the few, and this comparative freedom points to the care exercised and to the individual excellence of the most responsible men. The simplest explanation is often the best and we may at once say that nothing more is necessary to explain the Shrewsbury catastrophe than to emphasise the fact that a man may become too much of a machine. Sudden aberration of mind rarely occurs except in connexion with epilepsy or severe shock, and there are evident signs that in this instance efforts were made to stop as soon as the condition of things was realised. There is practically no "strain" upon men who from long custom have become more or less automatic; indeed, it is probable that if there were more "strain" there would be more active attention and less risk. It is the absence of strain that constitutes the danger. The presence of heart disease and the liability to sudden loss of memory we may dismiss as unlikely in men who are seen to be in good health and the course of whose daily life is known and supervised. Two important factors deserve notice: one that the train was running at night when, though free from mist, it was very dark; the other is that the stoker was a temporary substitute On a dark night it is not so easy to judge pace, especially if, owing to the darkness, the driver cannot see objects outside his car. We have known, indeed, an instance of a driver actually sending his train in a direction opposite to the one in which he thought he was going, because, being in a tunnel, he had no external objects to show him his true line of progress. Everyone knows that unless collateral objects are viewed it is often difficult for a person sitting or standing in a train in motion to know in which direction he is going. If, too, the driver misjudged his locality owing to wrong estimate of pace his attention would probably not be called to his exact position by a strange stoker who may also have been otherwise engaged. Let us note the circumstances. Here is a driver, an experienced, sober, healthy man, only 51 years of age, going over a well-known route and impressed by the fact that the train is late. He has been accustomed to find everything prepared for him and the line kept clear of obstacles, and so he increases his speed to bring himself up to the proper time relations to which he is used. In the dark and owing to the extra speed he loses his sense of his exact position and when too late he does realise that he is going too fast and that he is nearer his goal than he thought he makes ineffectual efforts to stop. Nothing more seems to be needed to explain this unfortunate occurrence than to note how easy it is for a man to lose exact knowledge of his whereabouts and to misjudge pace under such conditions as above detailed. Perhaps, trusting to all being kept clear for him as usual, he may allow his attention to wander to other things, such as the excitement of an impending strike or some private family care or worry, and his active attention being lulled and blunted by his acquired automatism he fails to realise that he has outrun his distance. Many remedies will be suggested, such as periodical medical examinations, employment of extra pilots on express trains, and so on, but to us it seems that the chief thing is to recognise that a responsible man should not be reduced to a mere machine but that his work should be frequently changed, so that his attention is kept on the *qui vive*, for though automatism has some advantages it may be a very dangerous condition when it is called upon to replace judgment and attention. The general immunity with which night expresses are conducted makes us forget the great dangers to which they are exposed but it is hardly to be hoped that the public will willingly stifle its speed-hunger, nor is it easy to see how accidents are altogether to be avoided whilst the relation of mental states to the environment is so delicately balanced. While on the subject of railway accidents we may refer to the death of an engine driver who fell dead on his engine while driving a train to Leicester on Oct. 19th. The fireman had to bring the train in. At the inquest held on Oct. 21st Mr. A. J. D. Riddett said that he had made a post-mortem examination, death being due primarily to cerebral embolism

and secondarily to heart disease. The heart disease was of a very serious character and had the driver been medically examined recently it would have been seen that he was liable to death at any moment. The coroner said that this case seemed to him to be a strong argument in favour of the periodical medical examination of all drivers, and the jury, in returning a verdict of "Natural causes," expressed their agreement with the coroner. To return to the Shrewsbury disaster, the post-mortem examination of the driver of the Shrewsbury express showed that he was in all respects a healthy man and as the brakes were found to be acting and the reversing machinery of the engine was seen to have been set in action it is clear that the driver knew the danger in which the train was and that he did his best to control the speed which he had allowed to become excessive considering his proximity to the station. That there has been an instance recorded of sudden heart failure and another of paralysis in drivers has naturally called attention to the advisability of the periodic medical examination of drivers and signalmen, but after all these cases of sudden death or of impairment whilst driving express trains are not as fraught with danger to the public as is the failure to recognise where the train is and at what pace it is going, because in the former case the second man on the engine would at once interfere and stop the train, whilst in the latter he would probably not interpose any opinion he might have as it would be out of place for him to lecture the driver. Sudden death or sudden disablement is, in fact, a casualty far less to be dreaded than is a mistake in judgment.

FLANNELETTE.

WE have received from the Manchester and Salford Sanitary Association a copy of a report which has been submitted to the committee of this association dealing with the alleged dangers of flannelette. The report embodies a number of careful experiments designed to determine the relative danger attending the use of this material as an article of clothing, particularly in the case of children. As is pointed out, the difference between ordinary calico or cloth and flannelette is that the latter has a nap which is obtained by "raising" one or both surfaces by passing it over revolving rollers provided with steel dents or teeth which draw from the surface a nap which forms a better non-conducting material for heat than the original cloth and which, therefore, gives a greater feeling of warmth to the person using it than does the "unraised" fabric. The impression is that this raised surface is a source of danger from fire, that it presents a sort of cotton-wool surface which readily catches fire and burns with considerable energy. The experiments have led to conclusions which we might have anticipated considering the evidence of practical experience upon the point, in spite of this, however, the investigator, Mr. William Thomson, F.R.S. Edin., F.I.C., says that in his opinion there is no more danger in clothing children in flannelette than in the cloth previously to its being "raised" or converted into flannelette. The conclusions at which he arrived, apart from this personal opinion, are, however, that it would be advisable for children's dresses to be made of woollen or a mixture of woollen and cotton fabric or of flannelette which has been treated to render it non-inflammable. Doubtless there are various qualities of flannelette, as in fact the report shows, some being more easily ignited than others, but we have to deal not with any particular quality but with a material which fairly represents what is very generally worn, and in our experience that material will almost always be found to be dangerously inflammable. There is nothing to be said against this material for the purposes of certain clothing and indeed its non-conducting properties, coupled with its porous character, make it a welcome material for wear in cold weather. It has not the disagreeable cold feel of ordinary smooth garments, a fact which has been appreciated by rich and poor alike. To the latter in particular the invention has been a real boon as supplying a warm and cheap garment for winter wear. All these points in its favour do not alter the fact that it is an easily inflammable substance. Adults may be expected to wear this material without running risks of setting it on fire but with children the case is different. Children do not know of these risks, and we have no doubt that there are instances of their getting burnt even when clad in a nightdress of ordinary non-fluffy material. The risk is, however, dangerously intensified when the material is fluffy, as is the case with flannelette. The statement of a coroner that in one year (1904) he held no less than 73 inquests on children who had been burnt to death and that a large proportion of these was due to flannelette igniting fully bears out this contention. Therefore, in the case of children wearing the ordinary flannelette they ought to be completely protected from coming into any possible contact with flame, or else they ought to be dressed only in flannelette which has been made non-inflammable.

MEDICAL MEN AND AMBULANCE LECTURES.

SOME stir has been caused in the ranks of the St. John Ambulance Association in the North of England by the recent action of the British Medical Association which has set its face against the delivery of free ambulance lectures by its members. At the annual meeting of the Keswick Centre of the St. John Ambulance Association Canon H. D. Rawnsley complained that a medical man "had to be paid a fee of five guineas or else he was not allowed by his Association to do the work." He is further reported to have said:—

> He thought it was an extraordinary thing that the great medical faculty should set itself in this way to stop the very important work done by the St. John Ambulance Association. Of course the association might say doctors should be paid for the work. But none of them were paid for all the work they did. He (the chairman) thought he might as well send his bill in to the association for coming to preside over their meeting that night.

This we have on the authority of the *Penrith Observer* of Oct. 22nd, but Canon Rawnsley seems to have gone home and to have thought better of it, for in the *Carlisle Patriot* of three days later he publishes a long letter on the subject in which more reasonable views are expressed and from which we quote:—

> I am reported to have said, "It was a strange thing that a great medical faculty should set itself to stop the very important work of the St. John's Ambulance Association." What I certainly intended to say was, "That it would be a very strange thing if it set itself to stop it." To me, I confess, such an idea seemed incredible, knowing as I do how generously they have helped it in the past.

Canon Rawnsley then explains that the recommendation or resolution of the executive of the British Medical Association has been sent up to the full council to await its final decision, and proceeds:—

> I cannot blame the medical faculty for this stand. It has always seemed to me that to expect medical men, worn out with a long day's work, to come down and give this teaching without fee, was to expect too much of men who, more than most, are constantly doing important services to the community without payment. And though one can see that in a way it enables a doctor indirectly to obtain the friendship of men who may become his patients that is a very uncertain fee after all.

We quote these remarks fully because in them Canon Rawnsley seems first to have set up a feeble argument against the payment of medical men and then very effectually to have knocked it to pieces. It is not probable that a large number of lawyers would volunteer to give systematic gratuitous instruction to possible clients in points of law, and we have heard from many pulpits that "the labourer is worthy of his hire." Although many members of our profession have in the past been willing and proud to give their services in an excellent and national cause, as they give so much of their service to many

causes, yet it is high time that the public should learn that it has no lien upon them. We trust that the Keswick Centre of the St. John Ambulance Association may be able to acquire the necessary 5 guineas for its course of lectures and we do not believe that the utility of the association will in any way suffer by this proclamation of professional rights.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for one year of the bequest of the late Señor Alvarenga and amounting to about $180, will be made on July 14th, 1908, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine but must not have been published. They must be typewritten and must be received by the secretary of the College on or before May 1st, 1908. Each essay must be sent without signature but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga prize for 1907 has been awarded to Dr. William Louis Chapman, of Providence, R.I., for his essay entitled "Post-operative Phlebitis, Thrombosis and Embolism."

THE DELUGING RAINS IN FRANCE.

THE excessive rains that have had such disastrous results in France and in various parts of Spain and in Italy during the past four weeks may not be unprecedented in those regions but certainly no such quantity of water has descended from the clouds in those districts in such a short period of time for a generation. The damage to property and crops and the loss of life by the direct action of the floods have been very serious but it is not at all unreasonable to suppose that the evils indirectly connected with the overflowing of the rivers and the consequent pollution of potable water, the sodden soil, and the inundation of dwellings at this season of the year, when the drying power of the atmosphere is relatively small and daily diminishing, will cause a very sensible rise in the death-rate and a still greater increase in all classes of disease engendered or accentuated by damp and cold. The appended figures are for France only and represent the amount of rainfall recorded at the various stations from Sept. 27th to Oct. 23rd. The volume of water is given in inches and also in gallons per acre, and it will be seen that the heaviest falls have been experienced at Biarritz among the low level observing stations and at Mont Aigoual among those of high level. As, however, the observing stations are comparatively few and large tracts of country, especially in the mountainous regions, are without a rain-gauge, it is quite possible, if not indeed probable, that in some other localities the deluge has been more extraordinary. But the known figures are sufficiently remarkable. Many places show a rainfall as great as usually occurs in at least three months and some districts have had as much as that due in half a year, while Biarritz and its vicinity have been burdened with nearly a year's rainfall within the four weeks. It is fortunate that the sluggish rivers of this country have not had to contend with such a volume of water, as the extent of inundated land would necessarily have been much greater. London and the Thames Valley, for instance, receive very little more than the four weeks' rainfall at Biarritz during an average year. Paris and a few other localities escaped the heavy downpours, although slight falls of rain were frequent. It is somewhat singular that our own southern and south-eastern counties should have experienced relatively little rain, while the opposite shores of the Channel were so unusually wet. The nearest point to our own coast, Cape Gris Nez, received no less than 9·41 inches, or 210,864 gallons per acre.

—	Inches.	Gallons per acre.	—	Inches.	Gallons per acre.
Nice	12·93	290,752	Gap	10·70	241,248
Marseilles ...	12·38	277,312	Pic du Midi ... (2859 metres)	10·35	231,840
Cape Sicié ...	11·26	252,224	Puy de Dôme... (1478 metres)	14·86	332,864
Cape Béarn ...	8·36	187,264	Mont Aigoual... (1554 metres)	23·19	519,456
Perpignan ...	10·19	223,306	Mont Ventoux (1900 metres)	9·96	223,104
Toulouse	7·22	161,728	Servance ... ... (1216 metres)	8·31	186,149
Biarritz	21·66	485,184	Dunkirk	5·11	114,424
Clermont... ...	7·35	164,640	Cape Gris Nez	9·41	210,864
Limoges	8·01	179,424	Paris	4·51	101,024
Rochefort... ...	8·80	197,020			
Bordeaux... ...	8·23	184,352			
Lyons	8·03	179,872			

THE CHILDREN'S COUNTRY HOLIDAYS FUND.

IN an appeal which we have received on behalf of this fund the Right Hon. Arthur Lyttelton states that while the gifts of the public have enabled 40,000 London children to enjoy a fortnight's country holiday with cottage hosts the committee of the fund is not without anxiety for the future. The income for the present year unfortunately shows some falling off and there is an urgent need for making up £1000 before Christmas. It would be a great misfortune if the work of this committee were hampered by want of money and there is hardly any philanthropic object which can be more highly recommended to the benevolent. The improved complexions and buoyant spirits with which the little holiday-makers return home leave no doubt as to the change having done them good in every way. The physical benefit, however, is not the only one, for the recollection of rural sights and sounds tends to enlarge the children's ideas and to teach them something of the beauty of nature. The treasurer of the fund is the Earl of Arran and the offices are at 18, Buckingham-street, Strand, W.C.

THE DIAGNOSTIC VALUE OF GLOBULIN IN THE CEREBRO-SPINAL FLUID.

THE cytological examination of the cerebro-spinal fluid has during the past five years achieved considerable importance as an aid to diagnosis, more especially in regard to general paralysis of the insane, tabes dorsalis, and cerebral syphilitic affections. In these conditions an increase in the number of lymphocytes is often found, in some cases a very marked increase. A lesser degree of lymphocytosis occurs in other diseases of the nervous system, as, for example, in epilepsy, disseminated sclerosis, and cerebral tumour, so that its diagnostic value is not absolute. More recently the estimation of the globulin in the cerebro spinal fluid has been studied with a view to establish its value as an aid to diagnosis. In a paper read by Herr Uonne before the Medical Association of Hamburg, published in the *Münchener Medizinische Wochenschrift* of Oct. 15th, a comparative study of the two methods is given. Herr Uonne has modified the usual procedure in testing for the globulin. He mixes equal parts of a saturated solution of ammonium acetate and of the cerebro-spinal fluid to be tested, and if turbidity results after an interval of three minutes the reaction is described as positive. He names this test the "Phase 1 reaction," since it is only differentiated

from the normal reaction by the arbitrarily chosen time limit. He finds this test superior to the estimation of the lymphocytes, not only in accuracy but also because it is simpler and requires no apparatus. He gives a list of various diseases of the nervous system in which he has applied the test. He found positive reactions in all the 22 cases of general paralysis and in 93 per cent. of the cases of tabes dorsalis, 17 in number, in which he applied it. There was also a positive result in two cases of congenital syphilis and in 92 per cent. of the cases of tertiary syphilis, 15 in number, in which it was applied. In none of the other conditions investigated, except in one case of cerebral tumour and in one case of secondary syphilis, was a positive reaction obtained.

WHAT IS BURGUNDY?

A RECENT prosecution of some interest to members of the medical profession related to the sale of a brand of Australian wine described as "Keystone Burgundy." The summons was issued at the instance of the Wine and Spirit Association. The ground of the complaint was the sale as "Burgundy" of that which did not come from that district, or, indeed, from France at all. The question whether the sale of this particular wine without any indication of its Australian origin constituted an offence against the Merchandise Marks Act did not eventually have to be decided, as at the adjourned hearing of the summons it was announced by the solicitor for the prosecution that the proprietors of the wine in question had given a written undertaking that in future every bottle should bear printed information as to the country of the wine's origin in lettering equal in size to that of the word Burgundy. In these circumstances the magistrate allowed the prosecution to be withdrawn. We are glad to see that the impression is gaining ground day by day that the label should be made the means of guiding the public against deception. We have written in favour of this means of protection for years, not that it is calculated to work out an absolute remedy but that, at any rate, it may materially help to educate the public. When an article is honest the seller of that article seldom hesitates to place a label upon it correctly and, if necessary, fully describing it. If it is the genuine thing he is proud of it; if it is not then there is something usually missing in the description so that it will often convey a false impression. Trade terms have become so elastic of late years that qualifying statements are required, it would seem, to make it clear what the particular generic term means. For instance, when a bottle is labelled simply "port," "hock," "burgundy," "sherry," and so forth, there is clearly nothing to indicate whether the contents of the bottle accord with the only meaning which was at one time attached to these terms. Formerly the terms stood alone as indicating in the case of port a wine from the Douro in Portugal; sherry a wine from Jerez in Spain; Burgundy a wine from the Côte d'Or, or the Burgundy district in France; hock the principal wine of the Rhine districts; and so on. The word "port," however, has been used to describe Spanish or Cape port, "Burgundy," Californian or Australian burgundy, "sherry," Hamburg sherry, and "hock," Australian or Californian wine, without any qualifying word or words setting forth the origin of the produce. There is nothing to be said against such produce so long as it is honestly described, for no one can deny that excellent wines are grown and produced in countries besides France, Spain, Germany, or Portugal. California, Australia, South Africa, Algeria, and Turkey are all producing wines which every season improve and year by year compete more closely with the classic wines, for example, of France and Germany. It is significant that the latter countries, but more especially France, are taken as models of wine-producing countries and every effort is made outside Europe to imitate the excellent wines of the Médoc district, the Sauterne district, the Côte d'Or (Burgundy), or even of the Champagne. With regard to champagne we believe that the public is protected by the action of the industry itself and no wine is allowed to be called champagne unless it is produced in the Champagne district of France. Some years ago attempts were made to call the excellent sparkling wines of Saumur champagne but they were frustrated by the wine-growers in the Champagne. All these substituted wines may "be just as good," they may even be better, but they should not be allowed to appear as, say, French wines, when the country of their origin is Australia or elsewhere.

EMIGRATION FROM ITALY.

THE greater part of the double number of the *Annali di Medicina Navale* for August and September is taken up by an elaborate statistical report on emigration from Italy during 1906, the author being Colonel A. Montano, a medical officer in the Italian Navy. "The torrent of emigration," he says in his exordium, "continues to increase with vertiginous rapidity. From the provinces of Sicily and Calabria, from the rugged country of the Abruzzi, multitudes of peasants in the prime of life, healthy and robust, stream without ceasing towards the coast in search of ships which shall transport them where they hope to conquer not merely a livelihood but wealth." In 1903 about 225,000 emigrants of both sexes left Italy for either North or South America, whereas in 1906 the numbers had risen to upwards of 400,000. It is true that some of these people eventually return to their native country but the majority remain permanently in the New World. The lamentable depopulation thus resulting is all the more noteworthy, inasmuch as of recent years considerable amelioration has taken place in the condition of the labouring classes of Southern Italy. As Colonel Montano says, it is enough to make one think that a kind of contagious madness, induced by the mirage of an easily acquired fortune, has taken possession of the inland peasantry.

THE UNION JACK CLUB.

THE great soldiers' and sailors' club which was opened by the King last July has proved itself a brilliant success and the only complaint which its enormous membership can bring against it is that there is not enough room for the accommodation which is required nightly and more especially at the week-ends. It will surprise many readers to learn that over 13,000 men have occupied the 204 available bedrooms during the three and a half months which have elapsed since the opening ceremony. Although every effort has been made to meet the demand for rooms the council has been obliged to disappoint many applicants and it now proposes to proceed as quickly as possible to erect 150 new bedrooms on an available portion of the original site. It is in possession of part of the necessary funds and Sir Edward Ward has forwarded us the draft of a scheme for raising the requisite balance. The proposal is to publish during next year a single number "magazine" to be sold on behalf of this fund. Many authors have already promised the free services of their pens and it is hoped that various leading artists will give their talent to the publication. If some generous firms can be found willing to contribute paper, blocks, and other necessary material, and if others will help with printing, binding, and publishing, as the council hopes, the scheme should meet with a great success, for there must be few people who will not spare a trifle in so worthy a cause. All communications regarding the proposed publication should be addressed to Major H. F. Trippel, at Onslow

Hall, Richmond, Surrey, who is the originator of the idea and will act as honorary editor in chief. It has our hearty support, for there is no doubt that the club is of real physical and moral benefit to the soldiers and sailors who use it. It may also be considered to be in some sense a national safeguard, for the provision of decent bedrooms and comfortable recreation rooms should go far to keep the "liberty man" from the temptations of the public-house and the streets and the attendant evils of alcoholism and syphilis.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THE Bradshaw lecture will be delivered at the Royal College of Physicians of London on Nov. 5th at 5 o'clock P.M. by Sir James Barr, the subject being the Pleuræ: Pleural Effusion and its Treatment; and the Fitz-Patrick lectures will be delivered by Dr. Leonard G. Guthrie on Dec. 3rd and 5th, their subject being Contributions from History and Literature to the Study of Precocity in Children. The Fitz-Patrick lectures previously announced for November have been unavoidably withdrawn to be replaced by those above mentioned.

LEFT-SIDED ABDOMINAL SUPPURATION DUE TO INFLAMMATION OF A DIVERTICULUM OF THE COLON.

IN the *American Journal of the Medical Sciences* for October Dr. G. E. Brewer has reported six cases of acute abscess originating in the left lower quadrant of the abdomen and so simulating appendicitis as to suggest transposition of viscera. He regards them as due to an analogous condition—inflammation of a diverticulum of the colon. The following are some examples. A middle-aged woman was admitted into hospital suffering from pain, tenderness, and muscular rigidity in the left inguinal region. The onset appeared to have been sudden and was accompanied by nausea and vomiting. There were moderate fever and some acceleration of pulse. A well-defined mass was felt midway between the left anterior spinous process and the median line. Operation revealed a well-inclosed intraperitoneal abscess containing about 100 cubic centimetres of foul pus. No evidence of a communication with the intestine could be found but the intestines were much matted together preventing examination. The wound was closed with drainage and rapid recovery followed. In another case a man, aged 45 years, was seized while at dinner with abdominal pain, nausea, and faintness. The attack soon passed off. He had a restless night and more or less constant pain in the lower abdomen accompanied by nausea. On the following day he felt ill but kept about. In the evening he was obliged to seek medical advice and colitis was diagnosed. He took to bed and for five days suffered from pain in the left lower quadrant of the abdomen. He was then seen by Dr. Brewer. The temperature was 103° F., the pulse was 110, and the leucocytes were 17,000. There was marked rigidity of the left rectus and a tender mass was present in the iliac fossa. Under ether an incision was made over the mass. After dividing the abdominal wall an abscess containing 120 cubic centimetres of foul pus and a fæcal concretion was entered. On washing it out a little ulcer was seen in the sigmoid flexure, through which a small amount of fæces was escaping. The cavity was packed with gauze and the wound was partly closed. Improvement followed, the discharge from the abscess diminished, and the sinus closed in about six weeks. The patient was restored to perfect health. In a third case a man, aged 54 years, was admitted to hospital suffering from acute peritonitis. Four days previously he was seized with abdominal pain which was soon followed by nausea and vomiting. The pain was first felt in the region of the umbilicus but later shifted to the lower abdomen where it became localised. As there was little fever acute indigestion was diagnosed. On the third day the symptoms became worse: the temperature and pulse rose, the abdomen became distended, and the vomiting recurred. On admission the temperature was 103°, the pulse was 123, and the leucocytes were 16,000. The abdomen was greatly distended and universally tender and tympanitic. Muscular rigidity was well marked. The urine was loaded with albumin and granular and hyaline casts. On opening the abdomen thin foul pus escaped. The intestines were deeply congested and matted together and in places were covered with fibrinous exudation. The appendix was no more inflamed than the surrounding viscera. In the pelvis were found a fæcal concretion and a loop of congested sigmoid flexure showing the gangrenous remains of a perforated diverticulum. The perforation was closed by Lembert's sutures, the abdominal cavity was washed out with saline solution, the wound was partly closed, and a drain was carried down to the bottom of the pelvis. The patient rallied well after the operation but paralytic distension of the intestines followed and he died after three days. In this case acute perforative diverticulitis was clearly the primary lesion. Dr. Brewer claims that it was also so in the preceding case. But he has not excluded the possibility that the small ulcer was due to some other cause. In the other four cases the cause of the inflammation was not found but Dr. Brewer thinks that the similarity of the symptoms to those of the last two cases points to a similar causation, especially as it is difficult to give any other explanation. During the last half-century pathologists have described several specimens of perforation of false diverticula of the descending colon leading to local or general peritonitis. But the condition has received little attention from clinicians.

DEATH CERTIFICATION.

IN a leading article in the last issue of THE LANCET on the subject of death certification we pointed out the difficulty with which a medical practitioner may be confronted in determining how long an interval may legitimately elapse between his last visit and the death of a patient and yet constitute attendance in the last illness for purposes of death certification, more especially in cases of sudden death, and we pointed out how desirable it is that some official rule or regulation should be made upon this matter. An inquest held at Derby on Friday, Oct. 11th, by the deputy borough coroner affords an illustration of this necessity. According to the report given in the *Derby Daily Telegraph* of Saturday, Oct. 12th, the deceased was a fitter, aged 68 years, who was in his usual state of health until Tuesday, Oct. 8th, at half past seven in the evening when he was taken ill. Disregarding the advice of his wife that he should remain in the warm kitchen where he had been playing dominoes, he went upstairs to bed. His wife remained with him, as he complained of feeling very bad, but noticing that he was becoming discoloured she called for assistance. Her mother and her brother-in-law came but the man breathed his last as they came into the room. The widow then went to Mr. F. R. Howse and explained what had occurred. Mr. Howse, who had seen the deceased on Sept. 23rd, 15 days previously, told the widow that her husband had suffered from chronic bronchitis and that if she returned in the morning he would give a certificate. When asked if he would come and see the body he replied that it would not be necessary. Mr. Howse in his evidence stated that he had attended the deceased off and on for three years and that he suffered from bronchitis and a weak heart. He saw him last on Sept. 23rd, at which date the deceased came to his surgery. The deputy coroner, after questioning Mr. Howse about the certificate which he had given certifying the

primary cause of death as chronic bronchitis and the secondary cause as heart failure following upon it, asked how Mr. Howse knew that the man had not taken poison, or committed suicide, or even been murdered, and said that he could not accept Mr. Howse's statement as to the cause of death until he had seen the body and could see for himself. He characterised the action of Mr. Howse as illegal and improper and adjourned the inquest to enable him to see the body. After an adjournment of 20 minutes the inquest was resumed and Mr. Howse is reported as saying that he had examined the body of the deceased and was now in a position to state that the cause of death was as he had certified, but from a letter published by Mr. Howse in the *Derby Express* of Oct. 14th we learn that he simply saw the body in the coffin. He further stated that he had repeatedly warned the deceased not to go out of a warm room into a cold one. The deputy coroner, in summing up, said he quite believed that Mr. Howse had given the certificate in perfectly good faith, but that he "hoped no medical practitioner would again give a certificate without first assuring themselves (*sic*) by an inspection of the body as to what the cause of death actually was." The jury expressed entire agreement with the remarks of the deputy coroner and added the opinion that the medical man had made a mistake in giving the certificate prior to viewing the body. Unless he has been misrepresented the deputy coroner seems to us to have acted harshly to Mr. Howse, whose action in signing the certificate was certainly not illegal, and although he would no doubt have been wiser to see the body of the deceased his action in this respect can hardly be characterised as improper, since under the present conditions the practitioner is not called upon to testify to the fact of death. The phrase, "as I am informed," of which Mr. Howse availed himself in the certificate, is allowed to be used in regard to the occurrence of death. Moreover, it is difficult to see what further information was brought out at the inquest, since although it might appear from the report of the inquest that a post-mortem examination was made, this, we gather from Mr. Howse's letter in the *Derby Express*, was not the case. He simply viewed the body in deference to the wishes of the coroner, but this examination had had no influence upon his opinion as to the cause of death. The deputy coroner seems to have been unaware that a mere inspection of a body, which he regards as essential to the signing of a certificate, is not only not legally compulsory but can in most instances give but little information as to the cause of death.

THE COMPULSORY NOTIFICATION OF TUBERCULOSIS.

WE publish in another column an interesting letter from Dr. E. W. Hope, medical officer of health of Liverpool. It appears that a seven years' experience of the voluntary system of notification gives him warrant to say that it has secured the cordial coöperation of the members of staffs of hospitals who deal with out-patients, and that it is largely due to this fact that the system has met with such success in Liverpool; it is a significant fact that the health committee in that city makes the same payment as for certificates of other infectious diseases; and we further note that Dr. Hope fully concurs with our expressed opinion by writing that a large number of measures—preventive, administrative, educational, and curative—have combined to bring about the marked decline in tuberculosis in Liverpool. To this happy result Dr. Hope's own labours have largely contributed and it is probable that much good has been done by a circular card, addressed to "consumptive people and those who live with them" and intended to be hung in patients' houses, which has for seven years past been distributed in Liverpool; this card contains a clear statement of the nature of tuberculous affection and the danger of infected sputa, with simple directions for the guidance of the consumptive patient. Dr. Hope has also sent to us a simple form for the voluntary notification of tuberculous disease. The recent statistics from Liverpool afford confirmation of the utility of the voluntary system. A similar system has been for some time past in operation in Manchester, Brighton, Stockport, and other English towns, as well as in certain metropolitan boroughs.

THE Department of Public Health of Queensland in a bulletin dated Sept. 21st states that one case of plague, being No. 40 in the present series, was notified on Sept. 16th. The patient was a man, aged 47 years, who was discovered to be suffering from plague on the arrival of the steamer on which he was employed at Brisbane on the 16th. He had been taken ill on the 12th inst. The vessel was quarantined in mid-stream, the patient was removed to hospital on the 17th, and the ship was thoroughly overhauled. 68 dead rats were found, some of them being in food-lockers. Of the dead rats 42 were too far decomposed for examination. Of the remaining 26 none was found infected. All the rats found on the ship belonged to the species Mus Alexandrinus rufus. No further cases have been reported from Cairns. As regards the Mauritius a telegram from the Governor received at the Colonial Office on Oct. 25th states that for the week ended Oct. 24th there were 12 cases of plague and 10 deaths from the disease.

Sir Alfred H. Keogh, K.C.B., Director-General of the Army Medical Service, will address an invitation meeting of members of the medical staffs of the general hospitals and the Volunteer medical officers within the London area on the afternoon of Nov. 12th on the subject of the proposed Territorial Royal Army Medical Corps. The gathering will take place at the Royal College of Physicians of London by the courtesy of its President, who will take the chair at the meeting, supported by the President of the Royal College of Surgeons of England.—He will also on Nov. 8th at a meeting of the Incorporated Society of Medical Officers of Health read a paper upon Disease Prevention in the Territorial Army, with a Proposed Scheme for Placing Medical Officers of Health in Relation to It. Volunteer medical officers are invited to attend the meeting which will be held at 7.30 P.M. at 1, Upper Montague-street, Russell-square, London, W.C.

THE Right Hon. Sir Herbert Maxwell, Bart., F.R.S., LL.D., has been elected chairman of the council of the National Association for the Prevention of Consumption and other Forms of Tuberculosis in the place of the late Sir W. H. Broadbent, Bart., that Dr. C. Theodore Williams, M.V.O., has been appointed vice-chairman of the council.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ANNUAL REPORT OF THE COUNCIL.

THE annual report of the Council of the Royal College of Surgeons of England, which is to be laid before the yearly meeting of Fellows and Members of the College on Thursday, Nov. 21st, has been sent to those Fellows and Members who have expressed the desire to have their names placed on the list of those to whom the report is sent annually. Any Fellow or Member desiring the same privilege can have the report sent each year by applying to the secretary.

Direct representation of Members on the Council.—The report contains a record of the work of the College in its various departments during the period from August 1st, 1906, to August 1st, 1907, and deals very fully with the question of direct representation of Members on the College Council. The memorial of the Society of Members to the Prime Minister is included, together with the observations thereon by the Council of the College, the rejoinder to these

observations by the memorialists, a statement by the deputations of members of the College Council, and some additional remarks made by the deputation on the occasion of its reception by the Lord President of the Privy Council.

Question of admitting women as Fellows and Members.—This question which was raised at a meeting of the College Council in April, 1905, is also fully dealt with and the petition in reference thereto is included. This petition is signed by 2792 names and include 380 Fellows of the College, 1500 Members, and 912 persons holding other qualifications. The Council obtained counsel's opinion on the points raised by the petitioners and, as a result of these inquiries, it has been ascertained (*a*) that the Council has no power under the charters of the College to admit women to examination for the diplomas of the College, but that it has that power under the Medical Act of 1876 (39 & 40 Vict., Chap. 41); (*b*) that the Council can, if it thinks fit, admit women to examination for the diploma of Member and decline to admit them to examination for the diploma of Fellow; and (*c*) that a woman, admitted a Fellow or Member under the Act of 1876, would not be able to take any part in the government, management, or proceedings of the College by reason of obtaining a registrable qualification under the terms of the Act. Having satisfied itself upon these points the Council adopted the following resolution, viz.:—

> That, in the opinion of the Council, it is desirable that women be admitted to examination for the diploma of Member.

It was then decided that, before taking a poll of the Fellows and Members upon the question, the Royal College of Physicians of London should be approached, in order that it may be ascertained whether that College would be willing to admit women to the Conjoint Examinations. Communications upon the subject have accordingly been addressed to the Royal College of Physicians but its final reply has not at present been received.

Alterations in the Regulations of the Conjoint Examining Board.—Some modifications have been made in the regulations of the Conjoint Examining Board. The regulations with reference to the examination in chemistry and physics in force before May, 1907, required that a candidate should present himself for examination in chemistry and physics together on each occasion until he passed in both subjects at one and the same time. This requirement has now been modified. A candidate is now required to present himself for examination in both subjects until he succeeds in passing in one of them, after which he will be re-examined only in the subject in which he failed. He will not, however, be allowed to pass in one subject unless he obtains at the same time at least half the number of marks required to pass in the other. The regulations referring to the examinations in anatomy and physiology in force before May, 1907, provided that the study of anatomy and physiology previously to the date of passing the first examination in chemistry, physics, and biology would not be recognised. This regulation has also been modified and it is now provided that the study of anatomy and physiology will not be recognised until a candidate has passed in two of the first three parts of the first examination—viz., chemistry, physics, and biology. The instruction of students in practical midwifery is a matter to which much time and thought have been given during the past year. Reports on the subject were received from the General Medical Council and a committee of the Royal College of Physicians of London, and were referred to the committee of management of the two Colleges for consideration. The several medical schools in London were approached through the committee to ascertain their views upon the subject and, as a result of the information thus obtained the regulations have now been altered in accordance with the views expressed by the committee of management. The modification in the regulations of the Conjoint Examining Board with regard to candidates presenting themselves for examination in chemistry and physics together has also been made to apply to dental students.

London School of Tropical Medicine.—Dr. H. H. Tooth, C.M.G., and Mr. A. G. R. Foulerton have been appointed by the two Royal Colleges for the year ending June, 1908, assessors to the examinations conducted by the London School of Tropical Medicine of students who have followed there or elsewhere a course of instruction approved by the Royal Colleges, and such candidates as may hold the diplomas of the Royal Colleges, and who are approved by the examiners, will be granted certificates endorsed by the aforesaid assessors. The conditions relating to the appointment of the assessors are included in the report.

Vivisection.—The President of the College, Mr. Henry Morris, who was appointed by the Council to appear before the Royal Commission on Vivisection as the representative of the College, gave his evidence before the Commissioners in May last. It will be remembered that when the President was so appointed the Council expressed the opinion that the Act of 1876 was sufficient protection against any abuse of vivisection and earnestly hoped that the progress of surgical science would not be hindered by further restrictive legislation.

Income and Expenditure.—With regard to finance, the gross income of the College for the past year amounts to £24,326, being £1035 less than the income of the previous year. This decrease is brought about by a decline in the receipts from the Conjoint Examining Board. Under this head there is a decrease, as regards the share received by the College, of £1155 in examination fees, of £102 in incidental receipts, and of £69 in fees for the diploma in public health. The expenditure of the College for the past year amounts to £22,648, or £382 less than the expenditure of the previous year. There is a decrease of £439 in the amount of the fees paid to the examiners of the Conjoint Examining Board, and a reduction of £277 in the expenses at the Examination Hall, which in the previous year were increased beyond the normal amount by payments for drainage repairs and sanitary improvements. The Fellowship examinations have cost £133 more and the dental £40 less than in the previous year. As regards the expenses of the College in Lincoln's Inn-fields there is not much variation except in the case of extraordinary expenditure which amounts to £893, an increase of £249 on that of the previous year. The principal item is a sum of £559 for altering and fitting up for the library some adjoining rooms formerly occupied by a resident clerk. This will provide accommodation for a large number of books and will be a very useful addition.

During the year three Honorary Fellows, 25 Fellows, 292 Members, and 11 Licentiates have died. Their names are given in the report.

The report records much good work done by the Council and will provide abundant material for discussion at the annual meeting. We would remind our readers that any motion which it is desired to bring before the annual meeting must be signed by the mover or by the mover and other Fellows and Members and must be received by the secretary not later than Nov. 11th. A printed copy of the agenda will be issued to any Fellow or Member who may apply for it on or after Nov. 18th.

REVISION OF LIST OF MEMBERS.

The new edition of the College Calendar has just been published. The list of Members has now been completely revised, the names being given in full in every case where space permits and the latest addresses added. This work of revision has been done in the secretarial department of the College during the past two years. The list will now be found much more useful for purposes of reference. Though the names of several Members who obtained their diplomas many years ago and whose whereabouts cannot be traced in any published lists of medical practitioners are still included in the Calendar, yet it is hoped shortly to print a list of these names and to seek the assistance of members of the profession with a view to ascertain if possible whether any of the Members included in the list are still alive. The oldest Member of the College appears to be Mr. John Green of Sheffield who took this qualification as far back as 1832.

The names of the College representatives on the various universities are now included in the Calendar, the joint representatives on the Senate of the University of London being Mr. Henry T. Butlin and Mr. A. Pearce Gould, whilst Mr. Butlin is also the College representative on the Court of Governors of the University of Birmingham. Sir John Tweedy, though no longer a member of the Council, still represents the College on the Court of the University of Liverpool, whilst the University of Sheffield and the University College, Bristol, have as the College representatives respectively Professor Howard Marsh and Mr. Thomas Bryant, ex-President of the College. The Fellows' list now includes 1341 by examination, 27 elected as Members of 20 years' standing, 18 "by election," and one elected "*ad eundem*." The Fellows' List thus contains 1387 names, as against 1363 for last year. The Members' List contains 17,544; last year the number was 17,424. The Midwifery List numbers 398, the Licentiates in Dental Surgery 2111, and the Diplomates in Public Health 601. The returns for the several examinations are given in detail and it is noticeable that the old regulation candidates' list for the Dental Examination has now disappeared from the Calendar.

MEDICINE AND THE LAW.

Toy Pistols.

WE are glad to see that Mr. Bros, sitting at Clerkenwell, has found that certain pistols, stated to propel shot by means of a spring and not to be either firearms or air-guns, are "weapons" which must be sold subject to the provisions of the Pistols Act, 1903, which forbids the sale to, or use of such articles by, any person under the age of 18 years. The point for decision resolved itself into the interpretation of the word "weapon," for the Act applies to "a firearm or weapon of any description from which any shot, bullet, or other missile can be discharged and of which the length of barrel not including any revolving, detachable, or magazine breech, does not exceed nine inches." A weapon, we observe, is defined by Dr. Johnson as an "instrument of offence, something with which one is armed to hurt another," and these two comprehensive definitions should be sufficient to protect the public from injury without interference with the legitimate pleasures of the young. An air-pistol or spring-pistol may not be a "weapon" which a burglar would select as an "instrument of offence" or a householder for the purpose of protecting himself but it may be, and is, an effective and dangerous "weapon" in the hands of a schoolboy or hooligan. It is none the less so because it cannot be relied upon for "stopping" purposes like an army or navy revolver or because it only inflicts serious injury when the missile reaches a favourable spot, such as the human eye. Moreover, it does not become a toy because in careful hands it is innocuous or because its users are chiefly young persons who in many instances may only handle it in the course of harmless recreation. On the score of its usefulness to anyone nothing can be said in its favour.

The Further Control of Petroleum.

At the Hackney coroner's court on Oct. 26th Dr. W. Wynn Westcott, J.P., held an inquest upon the body of a girl, aged 13 years, who had met her death in the following circumstances. Early in the afternoon, in a kitchen where no fire was burning, the child's mother had been dry-cleaning some large garments with motor petrol; she commenced her work with two gallons of petroleum poured from a properly labeled can. When she had finished cleaning the articles about a quart was left in an open basin, so that the suspended "dirt" might settle and the clean spirit might later be poured off and stored. This in itself was strictly an illegal act and was subject to a penalty of £20. The mother went out in the evening, leaving the child at homework in charge of the housemaid. At 10 P.M. the daughter rinsed some doll's clothes in the petrol, and waving them to hasten their drying the vapours reached the gas flame. In the resulting flash the child was terribly scorched, charred, and, in fact, in places roasted, so that she died within six hours. The housemaid escaped unhurt. In summing up to the jury the coroner dealt fully with the provisions of the existing Petroleum Acts which have been again and again found faulty now that petrol or gasolene is used so extensively in driving motors and in dry-cleaning at home; the household hints of certain newspapers, he suggested, had not been sufficiently guarded when advising the use of petrol for the latter purpose; the danger attending the pouring of waste petrol down drains was also referred to. He pointed out that on two recent occasions the public control committee of the London County Council had memorialised the authorities further to restrict the conditions of retail sale of this dangerous spirit. At present all that is requisite is that each vessel containing petrol shall bear the name and address of the vendor and shall be labelled "highly inflammable." In May, 1906, the County Council suggested that the label should, in addition, contain a warning as to the danger of the proximity to the petrol of naked lights and fires, and in February of this year the council agreed that the quantities now allowed to be stored should be reduced. The coroner hinted that the process of dry-cleaning should take place in the open air and during daylight. The jury in finding a verdict of accidental death requested the coroner to append the following rider:—

> The use of petroleum spirit for cleaning purposes within private houses, by persons ignorant of its dangers or too careless to take the needful precautions in its use in open vessels and in rooms in which fires or naked lights are burning, needs to be restricted by further legislation; also, the conveyance and storage of petroleum spirit require further regulation to prevent the loss of further lives, the jurors being aware that 43 fires were caused even last year in London alone, which resulted in the deaths of four persons and serious injuries to ten others.

THE MEDICAL SERVICE FOR THE PROPOSED TERRITORIAL FORCE.

SIR ALFRED KEOGH'S EXPLANATION.

ABOUT a hundred members of the medical profession from the towns of Lancashire, Cumberland, and Westmorland attended a meeting at the Midland Hotel, Manchester, on Oct. 25th, to hear Sir Alfred Keogh, Director-General of the Army Medical Service, explain the War Office's proposals for the medical arrangements of the Territorial Force.

Colonel WILLIAM COATES, the commanding officer of the Royal Army Medical Corps Volunteers in Manchester, occupied the chair. He mentioned that the Territorial and Reserve Forces Act of 1907, which would come into operation in the early part of next year, was "the outcome of Mr. Haldane's gigantic brain," and that "short of compulsion it was the very best scheme that could be possibly devised." It behoved the medical profession, so far as the medical arrangements were concerned, to do its best to insure the scheme's success. Sir Alfred Keogh had brought his great experience and boundless energy to work in devising a scheme suitable for the territorial force and had gone about the work in a manner far different from that adopted by the War Office, for he had taken the medical profession into his confidence and had asked freely for advice in most of the details. This was a step in the right direction. "In Lancashire," Colonel Coates added, "we do not propose to be behind any of the other divisions in the medical arrangements. We shall do everything we can to support most loyally Sir Alfred Keogh in his endeavours to turn out a thoroughly good and practical scheme."

Sir ALFRED KEOGH said that the scheme which he was to explain was not by any means new, seeing that it was drawn up about at the time when he became Director-General, but had been held in abeyance till Mr. Haldane had considered the general arrangements for the organisation of the Volunteers. "I thank you all for coming to listen to me," he went on to say, "especially as many of you have come from long distances and at great inconvenience. To me it is a great compliment because if you will only think of it I can do nothing without you. If I fail at this thing it will mean that the medical profession has failed. I might have written out the details of this scheme and sent it out in the old manner but I want the scheme to be the scheme of the medical profession. So far it is the scheme of a large number of the medical profession with whom I have had the opportunity of discussing it; amongst the rest Colonel Coates himself. He has written a paper on the subject in the *Journal of the Royal Army Medical Corps* which has been of great assistance to me. The medical service of the volunteers is utterly inadequate either under the territorial army system or under the volunteer system to perform the duties which are required of it in time of war. I know that a great many people say, 'Oh, when war breaks out you will get lots of doctors'; but 'lots of doctors' won't do. There is a differentiated function for the army medical officer. He has not only to see to the curing of disease and the healing of wounds but he is an administrator and organiser, and the better business man he is the better officer he is. All these things are compatible with a very definite love for and pride in his profession." Sir Alfred Keogh having explained first the medical organisation of the British regular army, proceeded by means of tabular statements and diagrams to discuss the organisation of the volunteers. He explained that when war broke out, what Mr. Haldane described as the expeditionary force would be able to leave the country, taking the regular medical service with it. The defence of England would then rest with the territorial force, and the medical equipment of this defence would fall on the medical profession. The duty of the medical profession in connexion with an army was to maintain the strength of the fighting force in the field. That was the primary, almost the only, duty, because it included all the minor duties. In one year the strength of an army in the field diminished by 80 per cent. A large part of that diminution was due to disease and it was the business of the medical service to see that disease was prevented and to see that no one was allowed to leave the force unless there was the strongest possible reason for his going. If the medical service determined that 3000 or 4000 or 5000 men must leave the fighting area no one could say "Nay," so that such decisions entailed an enormous responsibility.

In the field ambulances there was something entirely new in the British army, but something that had proved a great success in the Russo-Japanese war. From the time that wounded men were picked up and taken to the field ambulance they would remain in charge of the medical staff; they were received, clothed, fed, paid, and where necessary sent home to England by the medical staff. This meant that an enormous work fell upon the medical profession. In an army of 100,000 men there would be always about 10,000 in the custody of the medical department. These 10,000 would have to be rigorously scrutinised as to the absolute necessity of their being transported home. One of the failures of the South African war was that many men came home to England who never should have come. In every one of the hospitals under the new scheme each patient would be watched carefully and sent back to his battalion if possible. Another new feature of the scheme was the provision of a sanitary service for an army in the field. Each division would have its special sanitary department under the charge of an officer with special knowledge of sanitation—a man whose whole time was given to sanitation in peace and in war and whose business it was to see that the health of the troops was guarded. A school of sanitation had been established at Aldershot where men were being carefully taught for every battalion. At the manœuvres these men had had further experience of the work expected of them and he was glad that reports received from the manœuvre areas were very satisfactory. The men were trained in water purification; they were taught the reasons for water sterilisation and the various ways of doing it. Each battalion was to have two water carts instead of one, and each cart would have an easily detachable sterilising apparatus. For water purification and also for disinfection these men were responsible in time of war. Sir Alfred Keogh added that in time of war he would flood the army with military and civil sanitarians and endeavour to prevent the decimation of battalions by disease. Turning next to the volunteer army he said it would be illuminating to the public if they could see how the medical service of the volunteers stood. The territorial scheme, he said, was a scientific scheme. Nearly every battalion had four or five or six medical officers. It was difficult to know what these officers were going to do in time of invasion. The volunteer army had few bearer companies and few field hospitals. They, perhaps, would be able to look after a few divisions, but the rest of the service would have no field ambulances at all. "Suppose for a moment that the regular army were out of this country and the regular medical service with it, and suppose we were invaded, and the volunteers camped out, and that you had near Manchester say 70,000 men, you would have in the first two or three days some 2000 sick at the ordinary rate. There are a good many people who will say, 'Send those men to the civil hospitals.' I should like to call your attention to this fact, that if we are invaded it will only be after we have had troubles and struggles at sea. There will be great distress amongst the civil population and the civil hospitals will have quite enough to do themselves, even if they ever had enough accommodation to take in 2000 sick from a comparatively small army in the neighbourhood of a town. This sort of thing represents the red-cross organisation of the territorial army; there are no field ambulances to speak of, no hospitals whatever, and, worse than all, there is not a single medical officer who is told off specifically for disease prevention. That is a worse condition than in the regular army a few years ago. The volunteer army is drawn not from barracks but from homes. We should in a very short time have an enormous amount of epidemic disease if no attempt were made to prevent it. Even then the sanitary problem is a far more difficult one than it is in the regular army. In 1898, when the Americans during the Cuban war mobilised their volunteer army in the camps of Virginia, Florida, and Pennsylvania, they had in five months 20,800 cases of enteric fever. I do not think you would have anything very far short of that if you were to mobilise the whole of the volunteers, put them into camps, and take no pains to prevent disease. We must have some arrangement by which the medical profession can devise a system of disease prevention, hospital organisation, and so on. I recognise that the medical profession is in a position of special difficulty with regard to volunteering. Under the old system the medical man had to go into camp every year, had to go through a certain course of instruction, and so forth. Of course, it is right that any citizen who joins the Volunteers for the purpose of learning tactics and strategy must give a certain portion of the year to the study of tactics and strategy. But it never has been clear, to my mind, why an eminent surgeon or physician who is connected with a great institution, a great hospital, or a great university should, to learn his profession, have to come out every year and go into camp. It is the most extraordinary phenomenon presented to the public from the War Office. I hold that it is only necessary for people to go into camp to undergo any training in peace who do not in civil life perform those duties which they would be required to perform in connexion with the volunteer army. Surely the medical officer of health of a county or great town can learn nothing from us in time of peace concerning sanitation. These men should not have been excluded from the volunteer army; there should have been a place for them, some method by which the country could have the great benefit of their service and experience, without putting any burden upon them in time of peace. That is one of the principles I lay down. But, of course, there are certain duties to be performed by medical men who join certain branches of the medical corps in connexion with ambulances and hospitals which must be learned." The Director-General went on to explain that he proposed two medical officers for each volunteer battalion and that each officer should go into camp every two years. "Even there," he said, "I do not wish to impose difficult conditions. I say that even if the officer cannot go into camp in the year when it comes to his turn he need not. The conditions are such that his explanation of inability to attend would be accepted; but he would be asked to do something else—to assist in some way in furthering the Volunteer movement in his own time during the year that would be left to his own good faith." In further explanation, Sir Alfred Keogh said that he proposed a consolidated medical corps for the territorial force, which meant that the medical profession would combine in one great organisation for the two classes of work which he had outlined—viz., hospital work and sanitary work—that the organisation should be an exact reflection of the medical corps of the regular army, with a principal medical officer in each area derived from the volunteer medical service, that a staff officer should be selected from the Royal Army Medical Corps to assist the principal medical officer, and that at the headquarters of each "area" a military medical school should be established with a specially appointed adjutant and staff of instructors. At these schools officers could gain their certificates and be saved the time and trouble of journeys to Aldershot. "Now I come to a very important matter," the Director-General went on to say. "We have no hospitals of any kind in the Volunteers, and I wish, in accordance with the principles I have enumerated, to raise the staffs of those hospitals in time of peace. I ask that the great physicians and surgeons in centres like Manchester and Liverpool should join the territorial force, not to undertake any duties whatever in time of peace, but to undertake specific duties in time of war. I do not ask them to leave their own towns. The principle here would be of sending sick and wounded to the hospitals. I propose to establish in connexion with Manchester a large general hospital—a military territorial army hospital—which in time of war would work in conjunction with the troops in the neighbourhood. They could do this work without interfering with their private work or their work in hospitals. I do not for a moment allege that it would not give them an enormous amount of work in time of invasion, but then everybody will be busy. I do not ask *you* to decide where the hospital shall be placed, how it shall be nursed, how organised; all I ask is that you should give me your names. I want to dot these hospitals all over the country." Sir Alfred Keogh said, in closing, that the appeal which he made to the surgeons and physicians he extended also to the sanitarians of the country—the medical officers of towns and counties. He wanted a sanitary officer for each division in time of war. He was also hoping to raise a nursing service and had already received much encouragement from the matrons of hospitals.

The details of the scheme were discussed at some length by those present, all of whom save one (who reserved his criticism) commended its purpose. On the motion of Mr. G. A. WRIGHT (Manchester), seconded by Surgeon-Lieutenant-Colonel W. M. ROOCROFT (Manchester), a motion was adopted pledging the meeting to support the scheme, and Sir Alfred Keogh was cordially thanked for his address.

TABLE A.—TRAINING OF THE TERRITORIAL ROYAL ARMY MEDICAL CORPS.

Rank.	Obligatory.			Voluntary.	
	Recruit Training.	Subsequent.			
		Training.	Course of Instruction.	Training.	Course of Instruction.
Officers of Units, including quarter-masters.	I.—A minimum of 30 attendances at drill, of which half must be performed before the annual camp. II.—The annual camp of his unit, unless excused by the General Officer Commanding, Territorial Division, or (*a*) attend an appropriate course of instruction in a Territorial Army Medical School, or (*b*) selected military institution. (8 days* in each case.)	15 attendances to be performed before the annual camp (optional for Field Officers). Annual camp.—Officers of Field units must do at least one annual camp in three.	When officers do not train in camp they must go through the course laid down for hospitals or at the Territorial Force Medical School. (8 days.*)	Attending for 14 days or 40 attendances the "Course at the Training School, Royal Army Medical Corps, the Dépôt, Aldershot, at a selected military hospital, or at a Territorial Force Medical School (for *p.s.*).	—
	NOTE.—An officer who has not served as such in the Royal Navy or Regular Forces, or who has not attended the 14 days' course mentioned in column 5, must within the first 2 years of his service attend an 8 days' course at a Territorial Army Medical School or selected military institution, and obtain a satisfactory report after examination, or pass the examination and obtain the certificate without attending the course. In addition to annual requirements he must, if appointed to a Field unit, obtain a certificate that he rides sufficiently well to perform his duties.	The Officer in charge and Quarter-master of General or Stationary Hospitals train in military hospitals or Territorial Force Medical Schools. (8 days.*)	—	—	Course of Territorial Force Medical School. (8 days.*)
		Sanitarians and other specialists, such as those holding the Diploma in Public Health, or a recognised hospital appointment, and who are not attached to combatant, or belong to medical units, may (not compelled to) come up every third year for either the annual camp or for a school course. (8 days.*)		—	—
Regimental Officers.	The annual camp. NOTE.—An officer who has not served as such in the Royal Navy or Regular Forces, or who has not attended the 14 days' course mentioned in column 5, must within the first 2 years of his service attend an 8 days' course at a Territorial Army Medical School or selected military institution, and obtain a satisfactory report after examination.	Annual camp. Before promotion to Major he must repeat the course mentioned in column 2.	—	As above.	—
Sergeants ...	—	As above.	—	As above.	—
Rank and file..	42 attendances at drill and instruction, of which one-half must be performed before the annual camp, should the recruit attend camp, or should the recruit not attend camp the whole 42 attendances should be completed before the hospital course (which can be taken instead of the annual camp) is commenced.	(*a*) 10 attendances at Headquarters and annual camp; or (*b*) course at a hospital, other selected institution, or Territorial Army Medical School in lieu of camp; or (*c*) for selected men, the course at a hospital, other selected institution, or Territorial Force Medical School and the annual camp, and no attendances at Headquarters.*	—	—	As above. *See* Paragraph 301 (xv.), Volunteer Regulations.
	The annual camp or military hospital course. (8 days.*)	Members of the Nursing, Cooking, and Clerica Sections appointed to field units must do at least one annual camp in three. Members of the General Duty Section should not train in hospital more than once during each period of engagement (4 years).		—	As above. *See* Paragraph 301 (xv.), Volunteer Regulations.
	Training of the Territorial Medical Transport.				
Officers	8 attendances at mounted drill and 8 attendances at foot drill at a medical training centre (school), which must be performed before the annual camp. If not a medical man he must be certified as being trained in first aid. The annual camp of his unit.	15 attendances at instruction (of which 8 at least should be out-of-door drills) to be performed before the annual camp. Annual camp.	One 15 days' course of instruction before promotion to the rank of Captain.	—	—
Staff-Sergeants and Sergeants (transport) ...	—	As above.	—	—	—
Rank and file (transport) ...	20 attendances at mounted drill (riding and driving), 8 attendances at foot drill, which must be performed before the annual camp. Recruits must also be certified as being trained in first aid. The annual camp of his unit.	As above.	Before promotion to Sergeant should undergo a 15 days' course of instruction.	—	—

* By the 8 days' course is meant a course of 8 days, not necessarily consecutive, or 24 attendances, of which not more than three in 1 day may count and of not less than 1 hour's duration each, at a suitable military or civil hospital, Territorial Army Medical School, or other approved institution.

SCOPE OF SUBJECTS—*Officers.*

Rank.	Subject.	Scope, and under what Regulation.	By Whom Instructed.	Examination.	Note.
Officers, including Quarter-masters on first appointment.	Drill	Squad and company, and Section II., Royal Army Medical Corps Manual.* Each officer should also make himself acquainted with Section I. of the Manual.	Under the direction of the Commanding Officer, who will employ the Adjutant and other officers and staff as he may think fit.	When the Officer Commanding is satisfied as to the officer's efficiency he will perform the duties of a company officer.	—
	The annual camp (8 days)	The period in camp should be solely devoted to Field work, and not to set drills. The work should comprise instruction in Field unit work, such as that required in a Field ambulance, convoy duty, marking out camps, preparing camping-grounds, selecting watering-places, instruction in the new water-cart, purification of water, camp conservancy, pitching tents and marquees, and work of a like nature.	Under the direction of the Officer Commanding the unit.	—	—
	Courses of instruction in a Territorial Army Medical School (8 days)	JUNIOR COURSE. TO INCLUDE 1. Drill. 2. War establishment of Field units (War Establishments). 3. Organisation of Field units (Manual, Royal Army Medical Corps). 4. Army Regulations—Discipline and duties of a company officer (King's Regulations). 5. Sanitation and other duties in camp, barracks, and on the line of march. ("Combined Training"; "Manual of Sanitation"; "Military Hygiene," by Lieut.-Colonel R. Caldwell, F.R.C.S., R.A.M.C., is recommended.) 6. Military Law, as applicable to other officers of the Territorial Army.	Under the direction of the Commanding Officer, Territorial Force Medical School.	Under the direction of the General Officer Commanding.	These are the subjects in which an officer will be examined before promotion to the rank of Captain. The examination may be passed at any time after the officer has completed 18 months' service, or before that time if in the interests of the Service.
		SENIOR COURSE (TECHNICAL SUBJECTS). 1. Army medical organisation in peace and war ... ... 2. Sanitation of towns, camps, transports, and all places likely to be occupied by troops in peace and war, epidemiology, and management of epidemics ... ... 3. (*a*) The medical history of the more important campaigns and the lessons to be learnt therefrom ... ... (*b*) A knowledge of the Army Medical Services of the more important Powers ... ... (*c*) The laws and customs of war, so far as they relate to the sick and wounded ... ... 4. Military Law, as applicable to other officers of the Territorial Army ... ... (Appendix VIII, B, King's Regulations.)	Under the direction of the Commanding Officer, Territorial Force Medical School.	Under the direction of the General Officer Commanding.	These are the subjects in which an officer will be examined before promotion to the rank of Lieutenant-Colonel. The examination may be passed at any time after the officer has completed 3 years in the rank of Major, or before that time if in the interests of the Service. The examination in Military Law may be passed at any time after the officer attains the rank of Captain.
		FOR QUARTER-MASTERS. 1. First aid as laid down for the recruit if not a medical man (*see* Manual).* 2. Sanitation and other duties in camp, barracks, and on the line of march. ("Combined Training"; "Manual of Sanitation"; "Military Hygiene," by Lieut.-Colonel R. Caldwell, F.R.C.S., R.A.M.C., is recommended.) 3. Army Forms, preparation of requisitions and vouchers for issue, receipt and repair of stores, &c. 4. Mode of packing and loading Field equipment and baggage. 5. Laying-out camps. 6. Care of equipment, &c.	Under the direction of the Commanding Officer, Territorial Force Medical School.	Under the direction of the General Officer Commanding.	A Quarter-master who has not served as such for 1 year in the Regular Forces, or has not passed the examination at the termination of a course held at the Training School, the Dépôt Aldershot, or at a selected military hospital, will be required to qualify in these subjects within 2 years of his appointment.
1	2	3	4	5	6

1	2	3	4	5	6
	Course of instruction at a selected military	If an officer elects for the 8 consecutive days' course, he will be	Under the direction of the	By a Board of Officers,	

1	2	3	4	5	6
	Course of instruction at a selected military hospital (8 days).	If an officer elects for the 8 consecutive days' course, he will be attached to a company, Royal Army Medical Corps, and receive instruction in hospital administration, as well as the subjects enumerated for a Territorial Force Medical School course, according to his seniority. If the attendances are intermittent, he will not be attached to a company.	Under the direction of the Officer in charge of the hospital.	By a Board of Officers, under arrangements of the General Officer Commanding.	
	Course of instruction at the Training School, Royal Army Medical Corps, the Depôt, Aldershot (8 days).	The 14 days' course compressed....	Under the direction of the Commandant, Training School, Royal Army Medical Corps, Aldershot.	By a Board of Officers, under arrangements of the General Officer Commanding.	
	14 days' training or 40 attendances at a Territorial Force Medical School (for *p.s.*).	The training will include a more extended course of instruction in the subjects enumerated for the 8 days' course, according to the seniority of the officer.	By the Officer Commanding.	—	
	14 days' training or 40 attendances at a selected military hospital (for *p.s.*).	If an officer elects for 14 consecutive days' training he will be attached to a company, Royal Army Medical Corps, and receive instruction in hospital administration as well as the subjects enumerated for a Territorial Force Medical School course, according to his seniority. If the attendances are intermittent he will not be attached to a company.	Under the direction of the Officer in charge of the hospital.	By a Board of Officers, under arrangements of the General Officer Commanding.	
	14 days' training or 40 attendances at the Training School, Royal Army Medical Corps, the Depôt, Aldershot (for *p.s.*).	As at present.	Under the direction of the Commandant, Training School.	By a Board of Officers, under arrangements of the General Officer Commanding.	

* The next edition of this book will be known as "R.A.M.C. Training."

Non-commissioned Officers and Men.

Rank.	Subject.	Scope, and under what Regulation.	By Whom Instructed.	Note.
Recruits.	Drill (squad drills shou'd not exceed 10 attendances and no two consecutive squad drills can be held in one evening).	Progressive in squad, company, stretcher, hand seat drill, drill with country carts and G.S. wagons, railway wagon drill, packsaddle drill. — Section II., I. to IX., Manual. Preliminary remarks, anatomical and physiological outlines, bandages and bandaging, fractures and apparatus, dislocations, sprains, wounds, dressing of wounds, antiseptic treatment, cases of emergency and their treatment, surgical instruments and appliances, contents of haversacks, and panniers, &c. ... ... — Section I., Manual.	Under the direction of the Officer Commanding, who will employ the Adjutant and other officers and staff as he may think fit.	When a man not classified as a recruit joins the Royal Army Medical Corps Territorial Force, or when a recruit is considered proficient in these subjects, he will be regularly posted to a company, and during the remainder of his attendances he will be perfected in these subjects under the direction of his company commander.
	The annual camp or hospital course (8 days).	*Annual Camp.*—The period in camp should be solely devoted to Field work and not to set drills. The work should comprise instruction in Field unit work, such as that required in a Field ambulance, convoy duty, marking-out camps, preparing camping grounds, selecting watering places, instruction in the new water-cart, purification of water, camp, conservancy, pitching tents and marquees, and work of a like nature.	Under the direction of the Officer Commanding.	Arrangements will be made to instruct, if necessary, "men not classified as recruits" in the subjects of the 1st year's training.
		HOSPITAL COURSE A.		
		1. *Nursing Section.*—	—	Not more than 3 attendances o 1 hour's duration each can be made in one day.
		(*a*) Practical work.		
		(*b*) Instruction in infectious diseases, medicine for external and internal use, prevention of common diseases, duties of privates employed as ward orderlies, elementary sick cooking, and for non-commissioned officers only, duties of senior non-commissioned officers (wardmaster) and of non-commissioned officer employed as steward ... ... — Manual, Section I., 13, 14, 18. Standing Orders, Section 13 (exclusive of III.), Appendix 2. Section 11 (exclusive of V., VI.) and Section 12.		

Non-commissioned Officers and Men—(continued).

Rank.	Subject.	Scope, and under what Regulation.	By Whom Instructed.	Note.
		2. *Cooking Section.*— (*a*) Practical work. (*b*) Duties of cooking section, prevention of common diseases, and for non-commissioned officers only, duties as compounders and non-commissioned officer employed as steward ... ... } Standing Orders, Sections 11, 12, 14, Manual, Section I., 18.		
		3. *Clerk Section.*— (*a*) Practical work. (*b*) Duties as clerks (statistical, orderly room), instruction in compilation of returns, registration, mode of conducting correspondence, indents, prevention of common diseases, and for non-commissioned officers only, duties as compounders and non-commissioned officer employed as steward ... ... } Standing Orders, Section 15.		
		4. *General Duty Section.*— (*a*) Practical work. (*b*) Duties of General Duty Section, prevention of common diseases and syllabus as for recruits, and for non-commissioned officers only, duties of compounders and stewards ... ... } Manual, Section I., 18. Standing Orders, Sections 11, 12.		
Subsequent years.	10 attendances at Head-quarters.	These must be made at Head-quarters for theoretical instruction by lecture or demonstration, according to the section to which each member belongs. All non-commissioned officers and men will also be exercised in drill in order to maintain their knowledge of the same.	Under the direction of the Officer Commanding, who will employ the Adjutant and other officers and staff as he may think fit.	—
		HOSPITAL COURSE B.		
	Hospital course (military) (8 days).	1. *Nursing Section.*—Operations, nursing of helpless patients, observation of the sick, management of wards ... ... } Manual, Section I., 10, 15, 16, 17. 2. *Cooking Section.*—Practical cooking. 3. *Clerk Section.*—Practical clerical duties. 4. *General Duty Section.*—Management of wards, duties of privates of General Duty Section ... ... } Manual, Section I., 17. Standing Orders, Section 13.	Under the direction of the officer in charge of the hospital.	Non-commissioned officers above the rank of corporal will, if trained in a military hospital, be instructed in the duties of stewards and, if qualified, in the practical duties of dispensers.
	Course at a selected institution (8 days).	Especially applicable to nurses and cooks. They should devote their time to practical work under the instruction of the staff of the institution.	Under the direction of the staff of the institution.	—
	Course at a Territorial Army Medical School (8 days).	A suitable course of instruction will be given upon the lines arranged under A and B, according to the section to which the non-commissioned officer or man belongs.*	Under the direction of the Officer Commanding.	—
	Course at the Training School, Royal Army Medical Corps, Aldershot (8 days).	The 14 days' course compressed.	Under the direction of the Commandant, Training School, Royal Army Medical Corps, Aldershot.	—
	14 days' training or 40 attendances at a selected military hospital, Territorial Force Medical School, at the Training School, Royal Army Medical Corps, Aldershot, or at a suitable civil institution.	The training will include a more extended course of instruction in the subjects enumerated for the 8 days' course.	By the Officer Commanding or staff of a civil hospital.	The detail of the 14 days' course at the Training School depôt is under consideration.

(*a*) General Duty Section, 3 annual camps out of 4 annual trainings compulsory.
(*b*) Nursing, Cooking, and Clerical Sections, 1 annual camp out of 3 annual trainings compulsory.
*(*c*) The Clerk Section can only train in camp or in military hospitals.
(*d*) When trained in camp special attention will be given to field training generally. Sections II., X., XI., XII.
1. The Nursing Section, in continuing their special work as learnt in hospital, will apply the same under conditions in the field.
2. The Cooking Section will pay particular attention to 38, Section II., Manual.
3. The Clerk Section will perform general clerical duties as occur in the field.
4. The General Duty Section will pay special attention to tent pitching, sanitation of camp, water-supply.

TABLE B.—PAY AND ALLOWANCES.

(*d*) Officers

TABLE B.—PAY AND ALLOWANCES.

Officers.

Rank.	Daily Rates of Pay during Training.	The following Additions to Daily Rates of Pay will be given in Peace only. When Mobilised, the Territorial Force will conform to the Regular Army in all respects.			Forage for Horses at Field Training.	§Outfit Allowance under Certain Conditions.	Furniture Allowance at the Rate of Half Lodging Allowance will be issued when Furnished Quarters are not provided. This includes Camp.
		*Field Allowance when Under Canvas.	†The Rates of Lodging Allowance are as follows.	‡Mess Allowance.			
	£ s. d.	s. d.	s. d.	s. d.			s. d.
Colonel	2 5 0	7 6	5 6	4 0	Yes.	£20 on first appointment.	2 9
Lieutenant-Colonel	1 10 0	6 0	4 6	4 0	,,		2 3
Major	1 3 6	4 6	4 0	4 0	,,		2 0
Captain	0 15 6	3 6	3 0	4 0	,,		1 6
Lieutenant	0 14 0	3 0	2 3	4 0	,,		1 1½
Quarter-master Lieutenant	0 9 0	3 0	2 3				1 1½
Quarter-master Captain	0 10 6	3 6	3 0	4 0	,,		1 6
Quarter-master Major	0 13 6	4 6	4 0				2 0

* When not under canvas, quarters or lodging allowance will be provided.

† At schools of instruction, if quarters are assigned, fuel in kind and the money allowance at army rates in lieu of light will be issued; also half lodging allowance to cover the expense of providing furniture, if unfurnished quarters are occupied. If not assigned quarters, money allowance in lieu of lodgings, fuel, and light will be allowed. When in camp, the necessary fuel and light will be supplied. The daily fuel and light allowance varies, according to ranks, from 1*s.* 10*d.* the highest winter rate, to 5*d.* the lowest summer rate.

‡ Mess allowance will also be drawn at schools of instruction.

§ Under conditions very similar to those now in force for volunteers.

Non-Commissioned Officers and Men.

Rank.	Daily Rates of Pay during Training.	*Camp Messing Allowance paid to the Commanding Officer, and to be Expended in Improved Messing.	Government Rations.	Corps Pay.	†Separation Allowance.
	s. d.	s. d.		s. d.	
Warrant Officers	5 6	1 0	Yes.	—	—
Quarter-master Sergeant	4 6	1 0	,,	—	—
Staff Sergeant	4 3	1 0	,,	—	—
Sergeant	2 8	1 0	,,	1 0	—
Corporal	2 1	1 0	,,	0 8	—
Private	1 2	1 0	,,	4*d.* to 8*d.* according to classification.	—
Bugler	1 2	1 0	,,		—

* This is in lieu of the 3*d.* messing allowance of the Regulars. † The question of rate of this allowance is still under consideration.

When attending schools of instruction, warrant officers, non-commissioned officers, and men will draw daily rates of pay, corps pay, with 1*s.* messing allowance, and Government ration or allowance in lieu—6*d.*

ASYLUM REPORTS.

The Earlswood Asylum (Annual Report for 1906).—There were 451 patients (309 males and 142 females) on the books of this asylum on Jan. 1st, 1906. During the year there were 53 cases admitted (36 males and 17 females). 31 of these were under 14 years of age, 11 were between 15 and 20, and 11 over 20 years of age. The medical superintendent, Dr. C. Caldecott, states that on the whole the future prospects of those admitted during the year were decidedly good. Six of the cases (four males and two females) suffered from epilepsy, seven males and two females were "Mongolians," and one male and one female were "cretins," and he specially reports that this latter type increasingly lends itself to treatment. Regarding the causation of the mental deficiency in those cases admitted during the year, there is a history of heredity in 11 cases, of troubles connected with pregnancy in 18, of tuberculosis in 14, of alcoholism in 2, and of convulsions or severe illness or accident in infancy in 13, while in 3 cases no cause could be ascertained. During the year 31 patients (21 males and 10 females) were discharged as "relieved" and 17 (7 males and 10 females) died. Tuberculosis in some form was responsible for five and epilepsy for two deaths. The general health of the patients in the institution was satisfactory. This report also contains a short summary of the religious work done in the institution under the supervision of the head schoolmaster, Mr. Small. There is also a short account of the work done in the boys' school under Mr. Small and in the mixed school under the head mistress, Miss Walmsley, and both these accounts form very interesting and encouraging reading. There appear to have been no changes in the branches of study attempted or in the methods used and the number of children attending shows a slight increase on that of the previous year. Great attention is paid in both schools to physical development. The boys when not in school are employed as tailors, carpenters, basket makers, shoemakers, gardeners, painters, and so on, and the girls are taught domestic duties for half the day and needlework in the afternoon. Recreation has an important place in the daily routine, walks, games, singing, and dancing, and evening entertainments proving a source of great enjoyment to the patients. The report of the board of management is mainly occupied with an account of the building and repairs which have been done to the asylum, and it states that the year 1906 has been "one of prolonged anxiety in respect of the repairs. It is evident that the stress and strain maintained for nearly four years may probably be continued for a similar period, unless the board are enabled by special providential aid to accomplish the completion of the necessary works instead of limiting the progress according to the funds available." The principal work accomplished during the year has been the completion of the structural repairs in hand and general redecorating and refitting for occupation. It is further reported that many parts of the building still requiring attention are in an increasingly dangerous condition in consequence of delay and are only kept from total collapse by means of "shoring up," and attention is drawn to the pressing need of funds to complete the work. The board of management and the Commissioners in Lunacy both allude in their reports to the very creditable way in which the superintendent and officers of the staff have administered the establishment under exceedingly difficult conditions during the rebuilding of the institution.

BRITISH MEDICAL BENEVOLENT FUND.

AT the October meeting of the committee only eight applications for help were received. To seven of the applicants grants amounting to £67 were voted in relief, the eighth case being postponed for further inquiry. Appended is a short abstract of the cases assisted.

Lic. Med. (T.C. Dub.), aged 60 years, who practises in London is in temporary difficulties resulting from an accident. Four children but none able to help. Recommended by Dr. F. T Roberts, vice-president, and by Dr. J. Dundas Grant. Voted £10.

Daughter, aged 23 years, of late M.R.C.S., L.S.A. Income £6 a year. Has been attending invalid mother, recently deceased, and proposes to train as a nurse. Recommended by Mr. A. W. Stocks. Voted £5.

Daughter, aged 67 years, of late M.R.C.S. Has maintained herself since the age of 17 but is now unavoidably in arrears with her rent. Recommended by Mr. W. A. Satchell, vice-president. Voted £10.

Daughter, aged 32 years, of late M.R.C.S., L.S.A. Has supported herself by nursing but is now incapacitated by extensive bone disease for which three operations have been performed. Slight help from friends and endeavours to earn a little money by needlework. Relieved three times, £29. Recommended by Dr. E. Hyla Greves. Voted £12.

Daughter, aged 57 years, of late M.R.C.S. Quite unprovided for at father's death many years ago and has been unable to support herself for the last few years owing to constant ill-health. Relieved three times, £33. Recommended by Mr. A. Pearce Gould, vice-president. Voted £12.

Widow, aged 46 years, of L.R.C.P., L.R.C.S. Edin. No income; three children, just self-supporting. Practically incapacitated by chronic rheumatism. Relieved 13 times £132. Recommended by Professor John Chiene, C.B., and Sir A. R. Simpson, vice-president. Voted £12.

Daughter, aged 57 years, of late M.D. Lond. No income; lets lodgings. Eyesight failing. Relieved 24 times, £184. Recommended by Dr. Walter Rosser, honorary local secretary. Voted £6.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8469 births and 4498 deaths were registered during the week ending Oct. 26th. The annual rate of mortality in these towns, which had been equal to 15·7 per 1000 in each of the two previous weeks, declined to 14·6 per 1000 in the week under notice. During the first four weeks of the current quarter the death-rate in these towns has averaged 15·2 per 1000, the rate in London during the same period being 13·9 per 1000. The lowest death-rates in the 76 towns last week were 6·3 in Smethwick, 6·6 in Walthamstow, 7·0 in Hastings, 7·2 in Devonport, and 7·3 in Leyton; the highest rates were 20·6 in Wigan, 21·2 in Liverpool, 22·1 in Burnley, 22·6 in Rotherham, 24·3 in Oldham, and 28·8 in Merthyr Tydfil. The 4498 deaths in the 76 towns last week were 331 fewer than the number in the previous week, and included 563 which were referred to the principal epidemic diseases, against 892, 882, and 747 in the three preceding weeks; of these 563 deaths 301 resulted from diarrhœa, 71 from measles, 60 from whooping-cough, 52 from diphtheria, 50 from scarlet fever, and 29 from "fever" (principally enteric), but not any from small-pox. No death from any of these epidemic diseases was registered last week in Hornsey, Hastings, Kings Norton, Wallasey, West Hartlepool, or Tynemouth; among the other towns they caused death-rates ranging upwards to 3·6 in Preston and in Rhondda, 3·9 in Hanley, 5·0 in Burnley, 6·2 in Merthyr Tydfil, and 6·8 in Burton-on-Trent. The fatal cases of diarrhœa, which had been 660, 634, and 494 in the three preceding weeks, further declined to 301 in the week under notice, the highest rates of mortality from this cause being 2·5 in Rotherham and in York, 2·6 in Southampton, 2·7 in Preston, and 4·5 in Burnley. The deaths from measles, which had been 35, 43, and 50 in the three preceding weeks, further rose to 70 last week, and caused death-rates ranging upwards to 1·1 in Newcastle-on-Tyne, 1·6 in Rhondda, 1·8 in South Shields, 2·5 in Barrow-in-Furness and in Cardiff, 4·1 in Merthyr Tydfil, and 4·9 in Burton-on-Trent. The fatal cases of whooping-cough, which had been 68, 70, and 75 in the three previous weeks, declined again to 60 in the week under notice; the highest death-rates from this disease being 1·1 in Oldham and 1·6 in Bootle. The 52 deaths from diphtheria slightly exceeded the number in the previous week, and included 11 in London, three in Manchester, three in Leeds, and two in each of six other towns. The fatal cases of scarlet fever, which had been 43, 48, and 54 in the three preceding weeks, decreased again last week to 50; 26 of these were registered in London, and five, giving a rate of 1·1 per 1000, in Salford. The deaths referred to "fever," which had been 16, 22, and 27 in the three previous weeks, further rose to 29 in the week under notice, the highest death-rate from this cause being 1·5 in Grimsby. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had risen from 2658 to 4995 in the 24 preceding weeks, had further increased to 5196 at the end of last week; 793 new cases were admitted during the week, against 759, 752, and 820 in the three preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 175 and 167 in the two previous weeks, were 166 in the week under notice, and were 96 below the corrected average number in the corresponding periods of the five years, 1902–06 The causes of 20, or 0·4 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in London, Manchester, Leeds, Sheffield, Bristol, West Ham, and in 50 other of the 76 towns; six uncertified deaths were registered

in Liverpool, three in Birmingham, two in South Shields and one in each of nine other towns.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 13·2, 13·8, and 14·0 per 1000 in the three preceding weeks, further rose to 14·4 per 1000 in the week ending Oct. 26th, but was 0·2 per 1000 below the mean rate during the same period in the 76 large English towns. Among these Scotch towns the death-rates ranged from 9·4 in Leith and 10·2 in Aberdeen, to 15·9 in Paisley and 16·9 in Glasgow. The 499 deaths in these towns last week were 13 in excess of the number in the previous week, and included 59 which were referred to the principal epidemic diseases, against 57, 81, and 61 in the three preceding weeks. These 59 deaths were equal to an annual rate of 1·7 per 1000, which was slightly below the mean rate last week from the principal epidemic diseases in the 76 large English towns; they included 20 which were referred to diarrhœa, 16 to measles, 14 to whooping-cough, five to "fever," two to scarlet fever, and two to diphtheria, but not any to small-pox. The fatal cases of diarrhœa, which had been 37 and 26 in the two preceding weeks, further decreased last week to 20, of which 13 occurred in Glasgow and three in Dundee. The deaths from measles, which had been nine and eight in the two previous weeks, rose again to 16 in the week under notice, and included eight in Dundee, six in Glasgow, and two in Greenock. The fatal cases of whooping-cough, which had been 17, 15, and six in the three preceding weeks, increased again last week to 14, of which ten were registered in Glasgow, two in Edinburgh, and two in Dundee. The five deaths referred to "fever" included four in Glasgow and one in Edinburgh; they were all cases of cerebro-spinal meningitis. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 51 and 71 in the two previous weeks, further rose to 88 in the week under notice, but were 14 below the number in the corresponding period of last year. The causes of 15, or 3·2 per cent., of the deaths in these towns last week were not certified or not stated; in the 76 English towns the proportion of uncertified deaths did not exceed 0·4 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 20·2 and 20·3 per 1000 in the two preceding weeks, declined again to 19·1 per 1000 during the week ending Oct. 26th. During the first four weeks of the current quarter the death-rate has averaged 20·2 per 1000, the rate during the same period being 13·9 in London and 12·8 in Edinburgh. The 143 deaths of Dublin residents registered during the week under notice were nine fewer than the number in the previous week, and included 15 which were referred to the principal epidemic diseases, against 18, 30, and 19 in the three preceding weeks; of these, eight resulted from diarrhœa, five from measles, one from whooping-cough, one from "fever," and not any from small-pox, from scarlet fever, or from diphtheria. These 15 deaths were equal to an annual rate of 2·0 per 1000, the death-rates last week from the principal epidemic diseases being 1·6 in London and 0·8 in Edinburgh. The deaths from diarrhœa, which had been 23 and 15, in the two preceding weeks, further declined to eight in the week under notice; while the five fatal cases of measles exceeded the numbers recorded in recent weeks. The 143 deaths from all causes included 39 of children under one year of age and 37 of persons aged upwards of 60 years; the deaths of infants showed a slight decline from the number in the preceding week, while those of elderly persons were in excess. Six inquest cases and five deaths from violence were registered; and 55, or 38·5 per cent., of the deaths occurred in public institutions. The causes of six, or 4·2 per cent., of the deaths registered in Dublin last week were not certified; in London the causes of all the deaths were duly certified, while in Edinburgh the proportion of uncertified deaths was 3·8 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: J. Chambers to the *King Alfred* and E. C. Cridland to the *Crescent*. Surgeons: W. P. Walker to the *Crescent* and to the *King Alfred* on recommissioning; W. W. D. Chilcott to the *Hawke* on recommissioning and to the *King Alfred* on recommissioning; J. L. Barford to the *Snipe*; H. A. Kellond-Knight to the *Racer*, additional, for Royal Naval College, Osborne; and A. S. Bradley to the *London*.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant Paul J. O'Sullivan to be Surgeon-Captain (dated Oct. 9th, 1907).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 6th Lancashire: Surgeon-Captain R. Humphreys resigns his commission (dated Oct. 3rd, 1907).

Rifle: 6th Volunteer Battalion the Royal Scots (Lothian Regiment): Surgeon-Lieutenant A. J. de Spiganovicz resigns his commission and is appointed Second Lieutenant (dated Sept. 24th, 1907). 6th (Fifeshire) Volunteer Battalion the Black Watch (Royal Highlanders): Surgeon-Lieutenant R. T. Ferguson to be Surgeon-Captain (dated August 6th, 1907).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

A meeting was held on Oct. 24th at Bristol under the presidency of Mr. A. W. Prichard (Surgeon-Lieutenant-Colonel, Gloucester and Somerset Volunteer Infantry Brigade) to consider the possibility of raising a section of the Royal Army Medical Corps (Volunteers) in Bristol. At the conclusion of the meeting several names were handed in with a view to enrolment if the sanction of the War Office is obtained.

DEATHS IN THE SERVICES.

Deputy-Surgeon-General Rowland Wimburn Carter, A.M.D., at Southsea recently. He entered the service in 1854 as assistant surgeon, became surgeon in 1867, surgeon-major in 1873, brigade-surgeon in 1879, and retired with the rank of honorary deputy-surgeon-general in 1884. He served with the 26th Regiment in the Crimea (medal with two clasps and Turkish medal), with the 32nd Regiment in the Indian Mutiny campaign (medal), and in the Afghan War of 1878–80 (medal).

Correspondence.

"Audi alteram partem."

THE PLAGUE IN INDIA.

To the Editors of THE LANCET.

SIRS,—With reference to the leading article on Plague in India in THE LANCET of Sept. 14th in which you were good enough to state that under the organisation adopted in the Madras Presidency plague has been kept under "reasonable control," I would invite attention to an erroneous *post hoc propter hoc* deduction in regard to the influence of the Indian Medical Congress as to the employment of correctly educated sanitary inspectors who form the backbone of the system in that Presidency. Whilst it is true that the first class of certificated sanitary inspectors in the Madras Presidency did not assemble till "1895, that is, a year after the Congress," as stated by you, the suggestion that special training should be required was placed by me before Government on Nov. 16th, 1893. Official pecuniary difficulties prevented an early decision, but after consultation with the Educational Department the scheme was definitely sanctioned by the Madras Government on Dec. 10th, 1894. This fact, as President of the Section of Public Health of the Indian Medical Congress (which was held on Dec. 23rd, 1894), I duly stated to the members, as will be found on p. 234 of the Transactions of that body. *More than a decade anterior to this date* one of my predecessors, the late Surgeon-General Cornish, C.I.E., secured an important stage in organisation in the Madras Presidency by giving each civil surgeon an assistant, so that they were capable of touring as "district medical *and sanitary* officers." Whilst, then, I would deny to the influence of the Congress the initiation of a sanitary organisation, I would gladly acknowledge that it was of utility in pressing upon the Government of India the importance of bacteriology and the necessity for improvements in sanitary administration; suggestions that were largely due to the late Surgeon-General Harvey and Professor Simpson, then health officer of Calcutta.

Not only did Madras not wait for the Congress, but I believe I am right in stating that the official recognition of certificated sanitary inspectors by the Madras Government

preceded similar recognition of their English prototypes by the Local Government Board of England. As time has passed, the technical education of the Madras certificated sanitary inspectors has been improved and, at the present time, includes a sound college education and searching examination in practical and theoretical hygiene and allied subjects for assistant sanitary inspectors, and in addition sanitary engineering and allied engineering subjects for "full-fledged" certificated sanitary inspectors. The entrance examination for training is the matriculation of the Madras University, which is reputed to be of a more severe character than that of either Calcutta or Bombay. From the published list of April, 1907, I find that there is available a total of 598 officially recognised certificated sanitary inspectors, several of whom are graduates of the Madras University, or hold certificates of competency in Government examinations in various scientific and technical subjects. Their names are maintained by the Sanitary Commissioner for the Madras Government in a register on conditions no less severe as to their morality than those which guide the General Medical Council as to the fitness of those who hold medical diplomas.

I have said thus much, because I notice that in your article you state that in India "the fewer sanitary inspectors there are the better. Sanitary inspectors are not usually a success in the East; monetary considerations are liable to destroy their utility." The meaning is veiled but sufficiently obvious. As an officer who was required to decide during 11 years whether complaints brought against sanitary inspectors by local authorities or private individuals affected their moral character I would state most positively that condemnation of the nature stated by you can be derived solely from experience in dealing with *unqualified* sanitary inspectors of an inferior class and inferior education to those with whom I have had the pleasure to deal. Nothing is easier than for the taxpayer, regardless of sanitation, to feel and speak spitefully as to an executive sanitary officer and during plague work such conditions are necessarily exaggerated. But a searching examination as to the position of certificated sanitary inspectors and other matters affecting plague organisation throughout the Madras Presidency by the Madras Government in 1905 ended in a clear proof that if occasional cases of want of honour were found amongst men hastily trained as "temporary plague inspectors" to aid the numerically deficient certificated sanitary inspectors be put aside, this great body of men may be regarded as possessed of exemplary rectitude. A more recent testimony to their value has been given during the last month in a published official communication by the able health officer of Rangoon, Major Williams, D.P.H., D.T.M., concerning men who have been imported to aid him in plague and general sanitary work. He stated: "They have been exceptionally useful in dealing with the Indian population of all races. Their ability in writing useful reports and their loyalty and devotion to their work have contrasted most favourably with the work of some of the European and Eurasian inspectors."

The grounds, therefore, upon which you would put aside sanitary inspectors with the statement "the fewer the better" is, I think, liable to mislead seriously those interested. Were such opinions to prevail the sanitary regeneration of India and the correct treatment of plague epidemics must be hopeless. No amount of skilled European sanitarians or bacteriologists can have any real influence upon the position until a well-paid, respectable, and technically well-trained executive staff of the same race as the people treated has been enrolled in each Province. No amount of talking, publication of leaflets, influence of revenue officers, or mandates from the Government of India can have any real effect unless there be a skilled executive staff to carry out intelligently the orders of skilled sanitarians and bacteriologists, which class I quite agree with you requires strengthening in India and should be an essential part of the organisation. Irrespective of the possession of such a staff of men enabling orders by officers possessed of a higher grade of technical skill to be carried out intelligently, the great yet simple practical fact remains that the sanitary inspector, if of suitable race and caste, is of the people and is with the people, and if, as should be the case, he is both possessed of a sound general education and skilled sanitary technical knowledge, he above all persons has it in his power to prove the necessity for sanitary action and the philanthropic policy of Government which actuates it. Both for political and sanitary reasons, therefore, the sooner the production of this class of men is proceeded with "the better" for India. I am glad to be able to add that the Government of Burma, which I have now the honour of serving, is, on my recommendation, taking preliminary steps towards the inauguration of a sanitary service whose executive staff will be formed of specially educated sanitary inspectors who will be provincial servants.

I am, Sirs, yours faithfully,

W. G. KING,
Sanitary Commissioner for Burma.

Insein, Burma, Oct. 5th, 1907.

*** Nothing could be more vexatious to us than the idea that a loose generalisation appearing in our columns might increase the difficulties of sanitary administration in India. We should have made it clear that the persons to whom the words "the fewer the better" were applied were unqualified sanitary inspectors. We publish Colonel King's interesting letter with pleasure.—ED. L.

THE NEEDS OF LONDON MEDICAL STUDENTS.

To the Editors of THE LANCET.

SIRS,—In the letter published in THE LANCET of Oct. 26th, p. 1189, Dr. Bertram Abrahams referred to my remarks on the subject of a degree for London students made when presiding at the dinner of the University College Hospital Medical School on Oct. 2nd. It may be of interest to state the suggestion I offered for consideration, since I believe that its essential difficulties are less than those that stand in the way of any other plan. It is that the University of London should, after such an examination in medicine as is thought proper, confer an M.D. degree on all holders of the Conjoint diploma who have taken the whole of their medical education, early as well as late, in London. To preserve the weight of the ordinary degree that which is suggested should have a distinctive designation, such as M.D. Conjoint Lond. or M.D. Met. Lond., this alone being used by the holders. The fact that many universities confer honorary as well as ordinary degrees is itself a precedent for two kinds.

The resistance such a proposal is likely to encounter seems less than that of accepting the Conjoint Diploma as the equivalent of the M.B. Lond. Year after year passes and nothing is done to remedy the defect which is a misfortune to the profession and is becoming a disgrace to the University that bears the name of London.

I am, Sirs, yours faithfully,

London, Oct. 26th, 1907. WILLIAM R. GOWERS.

THE COMPULSORY NOTIFICATION OF TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—I have read with interest the annotation in THE LANCET of Oct. 26th, p. 1174, upon the subject of the compulsory notification of tuberculosis, in which the point is raised as to whether the voluntary system of notification would in practice meet the requirements in the case of patients coming to the out-patient rooms of hospitals. Seven years' experience of the voluntary system of notification of phthisis in this city enables me to concur fully in the view that the voluntary system is sufficient to meet the requirements of these cases. The medical officers of the various medical and other charities have at all times given the most cordial coöperation in this system of notification and it is indeed largely owing to this that the system is as successful as it is; it would be invidious, as it certainly is unnecessary, to single out medical officers of public institutions for compulsion.

It may perhaps be of interest to state that the Health Committee in 1901 decided to make the same payment for notification of cases of phthisis as for other forms of infectious sickness. A large number of measures—preventive, administrative, educational, and curative—have combined to bring about the marked decline in tuberculosis in this city. A further valuable addition to these means will be available shortly, when the Liverpool Country Hospital for Chronic Diseases of Children is opened at Heswall, as this large establishment will be available for the treatment of

tuberculous diseases. I inclose the special form of notification certificate made use of in this city, together with the card of instruction which is drawn up for the use of consumptives and for those who live with them, which has been circulated for the last seven or eight years.

I am, Sirs, yours faithfully,

E. W. HOPE,
Liverpool, Oct. 28th, 1907. Medical Officer of Health.

DRUNKENNESS IN WOMEN.

To the Editors of THE LANCET.

SIRS,—The degeneration of the race attributable to alcohol has become so serious that there is a duty on the medical profession to deal with the problem. The London police magistrates have pointedly commented on the very marked increase of drunkenness in women. I would suggest that the profession should consider what has been the after-effect of alcohol on the female constitution and habits when administered in the following cases: (1) in painful menstruation; (2) during labour; (3) during lactation, to increase the flow of milk; and (4) during the depression that so often accompanies the menopause, and assuming these after-effects to be deleterious how they may best be combated and, if possible, prevented. It is desirable that a consensus of opinion of those best able to form one may be elicited. I am, Sirs, yours faithfully,

J. FLETCHER LITTLE.
Harley-street, Cavendish-square, W., Oct. 28th, 1907.

POLYMASTIA AND TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—My attention has been drawn by your leading article in this week's number to Dr. Teizo Iwai's article in THE LANCET of Oct. 5th, p. 958, on the "Relation of Polymastia to Tuberculosis." I have frequently—and especially during the past few years—drawn attention in my wards to the comparatively large number of cases of supernumerary nipples seen in both sexes in the course of a year's work in a chest hospital. It is difficult to judge as to whether or no this condition is more common in the tuberculous than in the non-tuberculous. I see a fairly large number of healthy persons stripped to the waist—in life assurance work and in other ways—but I see a much larger number of patients suffering from chest diseases thus uncovered. Though I have not infrequently noticed supernumerary nipples in healthy persons I believe the proportion of tuberculous patients showing this peculiarity is greater than amongst the healthy persons I have examined. Comparison between the tuberculous and non-tuberculous in this respect upon equal terms is however difficult, as, apart from the actual numbers of each examined, most consumptives come under medical observation at some time or other, whereas only a small proportion of healthy adults are ever medically examined fully uncovered to the waist.

I am, Sirs, yours faithfully,

Harley-street, Oct. 26th, 1907. J. EDWARD SQUIRE.

THE BRISTOL ROYAL INFIRMARY AND THE PLURALITY OF HOSPITAL APPOINTMENTS.

To the Editors of THE LANCET.

SIRS,—May I make an explanation of the apparent want of unanimity among the members of the staff of the Bristol Royal Infirmary in the manifesto issued by them to the governors on the new rule controversy?

You state that 20 out of the 22 members signed their names, thus suggesting that they were not absolutely united in their action. Unfortunately this is in part true, but not wholly. One member has, since the controversy began, resigned his post, a step long contemplated but in no way connected with the difference between the staff and committee. This gentleman has not been as yet made a consultant, and hence is technically no longer on the staff and so ineligible to sign. The other is the assistant dental surgeon who does not follow his colleagues.

I am, Sirs, yours faithfully,

Bristol, Oct. 29th, 1907. BERTRAM M. H. ROGERS.

LONDON POOR CHILDREN IN THE COUNTRY DISTRICTS.

To the Editors of THE LANCET.

SIRS,—No one begrudges the visits of the poor children of London into the country districts during the summer months. These visits, thanks to various agencies, come now quite as a matter of course, and it goes without saying are eagerly looked forward to by the young participants who derive very great benefit from their sojourn in the pure air of the country. But, unfortunately, the local authorities in many districts do not anticipate the visits of the London children with any degree of pleasure, owing to various circumstances which have arisen, and rather than any obstacle should be placed in the way of the children's annual migration from the metropolis to the country it would be as well if the organisers in London would coöperate with the public health authorities. Sanitary authorities in the rural districts are doing an excellent work in studying the public health, but the authorities do object—and it is only natural—to cases of an infectious character being imported into their midst. The county of Sussex, owing to its proximity to London, is a favourite rendezvous for London children at intervals during the summer, and holiday homes as the houses are called, where the youngsters are housed sometimes in considerable numbers, are frequently to be met with. Midhurst is a favoured locality, but the sanitary authority has a serious grievance in the fact that the visit of children of the poorer class last month brought with it a case of scarlet fever. The sanitary authority contends that the case should have been diagnosed in London and kept isolated there instead of the great risk which was run in allowing first the child to travel by train, and, secondly, the possible importation of the disease into another district. Thanks to the vigilance of the sanitary officials at Midhurst the disease has not spread, and the district council has taken the very wise course of putting themselves into communication with those who are in the habit of sending children into its district, urging upon them the importance of insuring that the children have a clean bill of health before leaving the metropolis. Other authorities, no doubt, will gladly endorse the action of the Midhurst council, and for the sake of the public health it is to be hoped that they will see that its suggestion is carried out.

I am, Sirs, yours faithfully,

Oct. 23rd, 1907. K. L. S.

THE CONGRESS OF GERMAN MEN OF SCIENCE AND MEDICAL MEN.

(FROM A CORRESPONDENT.)

THE Seventy-ninth Congress of German men of science and medical men was held this year in Dresden from Sept. 17th to 23rd. The importance of the proceedings will be understood from the fact that the attendance was about 4000 and that about 600 papers or communications were sent in. This is the only congress in which the members of the medical profession find themselves in association with representatives of the other natural sciences. The discussions which followed the reading of the numerous papers showed very plainly what those who cultivate these various branches of knowledge might learn from one another.

In connexion with the congress there was an exhibition of scientific apparatus and chemical products which attracted a great many visitors and presented a brilliant picture of the development of chemical industry. Any attempt to mention all the objects exhibited and all the papers that were read would far exceed the limits of this article and it is impossible to do more than to refer to a few which presented exceptional medical interest.

The Exhibition.

Among the objects exhibited the firm of Carl Zeiss in Jena showed their ultra-microscopes, together with many fine microscopical preparations and a living specimen of spirochæta pallida, the microbe of syphilis, in which the corkscrew formation was plainly seen. A firm of chemical manufacturers—the Laboratorium Lingner—showed samples of pyocyanase which is said to be a powerful but non-poisonous antiseptic. In specimens exhibited under the microscope the bacteriolytic action of pyocyanase on the micro-organisms of anthrax and diphtheria could be observed. A great deal of attention was given to a new system of preparing artificial

carbonic acid baths, which were now for the first time publicly brought under the notice of the medical profession and created interest by reason of the state of subdivision in which the globules of gas were diffused through the water. In their action they resemble the natural carbonic acid baths of Nauheim, St. Moritz, and Kissingen, which are known to be useful in cases of heart disease, gout, and nervous affections. It is claimed that the home treatment of these diseases by means of carbonic acid baths has therefore now become possible.

The Treatment of Milk.

Dr. H. HEMPEL (Dresden) read a paper on the Treatment of Milk. He said that the ferments present in milk possessed important qualities and that a portion of the protective substances contained in the body of an animal certainly passed into the milk. Care must therefore be taken not to impair the efficiency of these protective substances. Milk was considerably altered by heating to 68° C., the bactericidal properties of the ferments being reduced, but no change of that nature was produced by cooling even to – 170° C. and frozen milk retained its essential properties for four weeks. The opinion that human milk could be replaced by the milk of an animal suitably diluted was quite erroneous. It was also a mistake to suppose that the milk which contained the most fat was the best. The principal requisite in the treatment of milk was that both the milch animals and the milkers should be clean.

Sleeping Sickness.

Dr. MÜHLENS (Wilhelmshaven) read a paper on Sleeping Sickness. He said that this disease had become very widespread in West and East Africa during the last ten years. Its scientific name was trypanosomiasis and the microorganism which caused it was the trypanosoma Gambiense. Biting flies of the genus glossina, especially glossina palpalis, contributed largely to the dissemination of the disease. The clinical symptoms had some resemblance to those of progressive paralysis and the result was always fatal (*ihr Verlauf ist stets tödlich*). The best treatment as yet discovered consisted in the use of atoxyl which might be supplemented by certain colouring materials, such as fuchsin and parafuchsin, as well as by strychnine and corrosive sublimate.

Hydrotherapeutics and Internal Medicine.

Dr. BRIEGER (Berlin) read a paper on Hydrotherapeutics and Internal Medicine. He commenced by referring to the disfavour with which hydrotherapeutics were regarded by many medical men who considered that an impassable gulf was fixed between such methods of treatment and the prevailing system of administering drugs. No department of medicine, however, could refuse to acknowledge hydrotherapeutics. The results obtained in the treatment of pneumonia showed the antipyretic and tonic power of hydrotherapeutic methods in the clearest light and he had frequently had opportunities of seeing their value in tuberculosis. In the acute stage of heart disease, as well as in the early stage of compensation, the judicious local application of cold might afford great relief. In diseases of the stomach hydrotherapeutic methods were often beneficial; not only might they diminish the necessity for rigorous dieting but they might also prove to be a substitute for the use of the stomach-tube which was so disagreeable to the patient.

The Correction of Rachitic Deformities.

Dr. VON ABERLE (Vienna) read a paper on the selection of the best time for Correcting Rachitic Deformities of the Lower Extremities. He wished to widen the scope of the indications for operative interference in these cases and he was therefore opposed to any prolonged system of expectant treatment. It was well known that spontaneous recovery from rachitic deformities was possible and this fact had encouraged the deferring of operative procedures, but by waiting too long a favourable opportunity for correcting the deformity might be lost, and if spontaneous recovery failed to occur the patient's condition was aggravated by the formation of compensatory deformities.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

THE entries for the winter session are now completed and although the total number of students is not so great as the most optimistic of the supporters of the University had hoped it is nevertheless very satisfactory, for it equals that of last year, which was a record entry. Moreover, it is in reality a better entry than that of last year, for it includes a much smaller number of occasional students and a much greater number of undergraduates who are taking the full courses of the University in its various departments. In the medical department the entry is the same as last winter session, both as regards medical and dental students, a condition of affairs which may be considered satisfactory at a time when the young men who in the past would most probably have joined the medical profession are making so great a rush to take up engineering instead, whilst the medical profession, in which there are numerous openings and in which the man who enters it can always make a living from the time he obtains his qualification or degree, is for the time comparatively neglected.

Annual Meeting of the Midland Branch of the Society of Medical Officers of Health.

At the dinner which followed the annual meeting of the members of the above society the majority of the speakers were in an optimistic mood with regard to most things which concern medical officers of health, except their security of tenure of office which they claimed was by no means on a proper footing. In proposing the toast of "The Public Health Services" Dr. Laurie expressed the opinion that the public generally were much more inclined to side with the medical officers than was the case in the past, and Dr. J. H. H. Manley, in responding, foresaw the time coming when every poor person would have the right to the services of a medical man at the expense of the State, though he did not explain why a poor man should have more right to such service than a rich man. Mr. J. W. Wilson, M.P., proposed the toast of "The Incorporated Society," and in supporting his proposition he acknowledged the advantage which the State would gain by enlisting the services of the medical profession in the classification of children for education purposes, and he referred to the Notification of Births Act as a serious attempt to effect a reduction in the alarmingly high rate of infant mortality. In replying to the toast Dr. George Reid, the new President of the society, ranged himself with Mr. Wilson in believing that the new Notification Act would put a great power for good into the hands of the public authorities, and Dr. A. Bostock Hill, whilst agreeing in general with the other speakers as regards the potential value of the new powers, was somewhat pessimistic as to their being put into force in a thorough and efficient way on account of the expense which would necessarily be involved.

Harborne Town-Planning Scheme.

Harborne is one of the suburbs of Birmingham and as there is suitable land in its boundaries a Harborne Tenants' Society has been founded with the object of promoting the erection, coöperative ownership, and administration of houses on principles similar to those in such successful operation at Bournville and in the Ealing Garden City. The scheme is one of a purely business character, so far as its monetary affairs are concerned; the society has obtained 35 acres of land, for which it has paid £15,500, and shares have been offered for subscription but no person is to be allowed to take more than a certain number. The land is to be planned out in a suitable manner, from a health point of view, and houses are to be erected at rents varying from 5*s.* 6*d.* a week upwards. After the expenses are paid 5 per cent. is distributed on the money invested, the remainder of the profit is to be returned to the tenants in the form of shares which, if they go away, they will be able to sell or to transfer, and thus, as Mr. H. Vivian, M.P., pointed out when he spoke after the ceremony of cutting the first sod had been performed by Mrs. J. S. Nettlefold, though no man would be able to own a house on the land he could become part owner of the whole. The scheme is worthy of success and apparently it will be well supported.

The Health of Warwickshire.

In the lucid report of Dr. Bostock Hill on the health of Warwickshire during the year 1906 certain facts stand out prominently and those of the greatest importance are of a satisfactory character. It is estimated that up to the middle of 1906 the population had increased by 10,435 as contrasted with the previous year, and, in association with this increase, it may be noted that the birth-rate has risen from 25·58 to 25·7, but it must be regretted that it is still below the average birth-rate for the whole of England and Wales. The death-rate for the year was higher than in the preceding year, 13·5 as contrasted with 12·87, but the increase is largely due to a rise in the "zymotic" death-rate which passed from

0·9 to 1·49, the increase being caused to a great extent by the epidemic of diarrhœa which was associated with the hot summer of 1906. One of the most satisfactory features of the report is found in the section dealing with river pollution, from which it appears that the conditions are gradually but certainly improving and that the outlook for the future is distinctly favourable.

The Opening of the New Children's Wards at the St. Cross Hospital.

On Saturday last Rugby was *en fête* to welcome Her Royal Highness Princess Henry of Battenberg, who visited the town to open the children's wing which has recently been added to the St. Cross Hospital. The foundation-stone of the new wing was laid by Mrs. Arthur James in March last and the building was completed a little more than a week ago. The new wing contains a boys' and a girls' ward, each measuring 36 feet by 22 feet, and provision has been made for seven beds in each ward. The wing is in harmony with the previously erected buildings and the estimated cost was £6240, the greater part of which has already been collected. In addition to the provision of the children's wards a new separation ward has been built, the dispensary has been enlarged, and a porter's room provided. It is intended to add an operating theatre, a sanitary tower, an anæsthetic room, and a new drug store, for which purposes an appeal has already been made for a further sum of at least £3000.

Hospital Saturday.

At a recent meeting of the delegates of the Birmingham Hospital Saturday Fund it was stated that the collection for the present year already exceeded that for the past year by £741 and that, with bank interest, the total had at last reached the desired £20,000. The increase in the sum collected is attributed by the committee to the extension of the weekly system, to the growing appreciation of the work done and the advantages received at the convalescent homes at Great Barr and Llandudno, and to a recognition of the help given to rheumatic cases and consumptives. The committee has not seen its way to grant an increase in the amount distributed to the hospitals but the chairman, Alderman Sir W. Cook, stated that it might possibly give more in the future if increased subscriptions were obtained, but at present with uncleared debts and the cost of maintenance of the various homes it was not possible to increase the donation to the hospitals. This must remain, therefore, as usual for the present and it is to be distributed in much the usual manner except that the Eye Hospital is to get £50 and Droitwich £25 less, whilst the Women's Hospital will get £25 more, the Lying-in Charity £20 more, Blackwell Sanatorium £20 more, and the Hay Mills Nursing Society £10.

Oct. 28th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool and Sea-borne Disease: Preventive Work of the Liverpool Port Sanitary and Hospitals Committee.

Mr. John Utting presided at the last meeting for the municipal year of the port sanitary and hospitals committee held on Oct. 17th. Alderman Giles, in proposing a vote of thanks to Mr. Utting for his services in the chair during the past year, said in him they had a chairman, a member of the medical profession, with a full knowledge of the details of the work and the ability and zeal to carry out the duties. Mr. Utting, in responding, said that although in some instances the duties of the position had been arduous they had always been a pleasure to him. The work of the committee was of a dual character. The importance of the work of port sanitary administration could be measured by the relative magnitude of the trade of the port. The total value of imports and exports for the year 1906 for the port of Liverpool approximated to £297,000,000. Another great indication of the importance of Liverpool as a commercial centre was the constant tide of emigration westward towards the American coasts, chiefly the United States and British North America. No other port could approach Liverpool in respect of the number of passengers who left and arrived annually. For 1906 the number of passengers to and from countries out of Europe coming through Liverpool totalled 471,068, or considerably more than half the population of Liverpool. When one added to that the large numbers that comprise the crews of merchant vessels and the large liners it would be very obvious to even the most cursory observer that the maintenance of sanitary conditions amidst such a vast body of moving people was of the greatest importance. In the early days of port sanitary administration, before any organised system of work had been evolved, owing to the numerous bodies having relationship with vaccination, public health, quarantine, and the Shipping and Passenger Acts, it was not infrequent for small-pox, typhus fever, and relapsing fevers to be imported into the city, and not only those diseases but others, such as cholera and plague. Much progress had been made within the last 25 years to establish a properly organised system of coöperation between the port sanitary authority, the shipping companies, and other bodies directing the affairs at the port. As a result the health authorities were now in touch with inward bound vessels and had cases of sickness on board notified from Holyhead or Formby lightship. Customs officers who boarded vessels also notified cases coming under their notice, as also ship surgeons. In regard to outward bound emigrant vessels any persons rejected by the Board of Trade medical officers were now reported to the authority and were taken charge of by an inspector of the port sanitary authority, who removed them to a suitable place. Without being vexatious or burdensome to shipping companies the system of medical inspection was a very efficient one. Plague, cholera, and yellow fever were still found endemic in foreign countries and seaports with which Liverpool was in constant commercial communication. During the last year experiments had conclusively proved that, in addition to infected persons, the rat and the rat flea were agents in transmitting plague; hence unremitting attention would have to be given to the examination of all rats caught on board ships coming from plague-infected ports. During the year it had, therefore, been necessary to keep ships from such ports under observation. The passengers and the crews had been medically examined individually and a certificate issued in each case to the dock master for the ship to enter dock. The total number of persons examined during the year had been 9091 and about 3000 rats had been caught on the vessels and sent to the laboratories for bacteriological examination. About a month ago the Local Government Board, as the outcome of the international conference in Paris, issued new cholera and plague orders which would be put into operation in the near future. Nine cases of suspected plague were reported to the authority during the year on board Liverpool ships. Two cases of yellow fever were reported. 168 cases of infectious disease were dealt with during the year. The number of emigrants passing through the port during the year exceeded 352,000. The inspectors had made 5313 visits to ships and notices to abate nuisances had been served on 1202 vessels. The cost of port sanitary administration had been £4409, a very moderate amount.

The Mitchell Banks Memorial Lecture.

Mr. A. W. Mayo Robson, F.R.C.S. Eng., professor of surgery in the University of Leeds, has been appointed to deliver this lecture at the University of Liverpool on Nov. 27th at 3 P.M. The subject of the lecture will be Pancreatic Disease.

Oct. 29th.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

Annual Meeting of the Association of Public Vaccinators of England and Wales.

THE Association of Public Vaccinators of England and Wales held its annual meeting in Leeds on Oct. 25th. The meeting was well attended and the business transacted was the reading of two papers of considerable value, with some discussion arising out of them. The former of these papers was presented by Dr. W. E. de Korté and dealt with Jennerian Vaccination, and the latter by Dr. A. E. Cope on the Saving of Child Life by Vaccination. In the evening the annual dinner of the association was held in the Hôtel Métropole when about 50 members of the association, as well as a good many guests, assembled. The chair was taken by Dr. Arthur Drury of Halifax who, in proposing the toast of "The Association," discussed at some length the recent Vaccination Act and the Order of the Local Government Board which dealt with the remuneration of public

vaccinators. Dr. Drury commented strongly and with manifest disapproval on the Local Government Board not being in the true sense of the term a board at all but a department consisting virtually of one man—the President; and it was obvious from the remarks of many of the other speakers that this was a burning question. Mr. Arthur Willey, the chairman of the Leeds board of guardians, who responded for "The Visitors," explained the action which his board had taken in regard to the payment of the public vaccinators in the area under its control. His speech was a strong encouragement to medical men to sink their minor differences and to be able to combine and to express their views as those of a united body. Had such expression of opinion, emanating from the local profession of Leeds as a whole, been in his possession he would have been able to secure a more generous recognition of the work and a more adequate remuneration for the services of the medical officers of the board. Mr. Willey's well-balanced remarks made a deep impression on the meeting and they were very ably emphasised by Mr. J. Smith Whitaker, the medical secretary of the British Medical Association. Mr. Whitaker, who in his speech took occasion to refer to the cordial coöperation of the proprietors of THE LANCET in all matters relating to the welfare of the medical profession, gave an account of the work which had recently been accomplished in many of the divisions of the British Medical Association as illustrating the usefulness of the kind of action which Mr. Willey had advocated.

The Yorkshire Association of Glasgow Graduates.

The second annual dinner of the Yorkshire Association of Graduates of the University of Glasgow was held on Oct. 23rd. This society was formed last year and it will be remembered that Sir William Macewen was the principal guest at the first dinner of the association. On this occasion Sir James Barr proved a worthy successor of the distinguished professor of surgery at Glasgow, for he accepted the invitation of the association to be its chief guest. The chair was taken by Dr. R. Forsyth of Birstall and there was a good attendance of graduates of the University and their guests. As is always the case in such gatherings, the great majority of those present were of the medical profession. Sir James Barr, in responding to the toast of his health, discussed the future of the medical profession with special reference to the functions of its members in relation to the prevention of disease.

The General Infirmary.

At a recent meeting of the faculty the following appointments were made to the resident staff: Mr. A. P. O'Connell, resident medical officer to the Ida and Robert Arthington Semi-convalescent Homes; Mr. V. C. Hackworth, M.B., Ch.B. Leeds, resident obstetric officer; Mr. J. B. Bibbey, M.B., Ch.B. Leeds, house physician to Dr. A. G. Barrs; Mr. J. S. Crawford, M.B., Ch.B. Leeds, house surgeon to Mr. H. Littlewood; and Mr. A. Richardson, house surgeon to Mr. B. G. A. Moynihan. The duties of secretary to the faculty of the infirmary are onerous and for some time it has been felt that a division of labour would be for the benefit of the infirmary as a charity and as a teaching institution. The secretary is responsible for all minutes, he is a member of all subcommittees of the faculty, is the means of communication between the faculty and the students, and advises the students as to their hospital studies. These duties have been making increasing demands on the time of the secretary for some years. Mr. Walter Thompson having just resigned the position of secretary it was resolved that in future two secretaries should be appointed, one of these being taken from the medical staff and the other from the surgical. The two gentlemen selected for the position were Dr. W. H. Maxwell Telling, assistant physician, and Mr. Joseph F. Dobson, one of the assistant surgeons.

Oct. 29th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Medical Consultations at the Bristol Workhouses.

AT the last meeting of the Bristol board of guardians there was considered a report of the hospital committee which contained a recommendation to appoint a consulting physician to be available in case of difficulty occurring in the treatment of patients in the infirmary wards at either of the two workhouses or where the workhouse medical officer would like to have the advantage of a second opinion. It was suggested that a temporary arrangement might be made under which the services of a consulting physician might be obtained. Although it was not so stated in the report, it is presumed that the committee intended to pay the usual fee for consultation. It was understood that not more than £50 should be spent during one year. In the course of the discussion which took place upon the consideration of the report it was stated that there are no suitable operating theatres at the workhouse infirmaries and that it was the custom to send patients for operation to the Royal Infirmary, in respect of which a payment was made of 16*s.* per week by the board of guardians to the infirmary. The only arguments which the opponents of the proposal brought forward were based upon the cost involved. Most of the lady guardians were in favour of the scheme and one of them said very pertinently that it was a question of human life on the one hand and of £50 on the other, but she feared that they were forgetting the human life. It is to be regretted that in the end the committee's recommendation was lost by 8 votes.

Cardiff Infirmary.

Up to the present £19,946 have been received towards the fund for providing a new wing for the Cardiff Infirmary. £10,053 have still to be raised and a strong effort is to be made to collect this sum before the close of the year.

Elementary Schools and Public Health.

In his presidential address to the West of England and South Wales branch of the Incorporated Society of Medical Officers of Health, Dr. J. M. Martin discussed the relation of the public health service to the elementary schools. He considered that the examination of children, which it would soon be the duty of education committees to provide for, should include an anthropometric survey; periodical examination of the eyes, ears, and teeth, and the general physical condition of the children; special examination of those suspected of being defective or epileptic; periodical examination for verminous conditions and diseases of the skin; examination of those alleged to be physically unfit to attend school; and examination for the prevention of the spread of infectious diseases. He dealt in a very reasonable spirit with the contentious question as to whether the work of inspection would be carried out more efficiently and economically by the general practitioner or by the medical officer of health or by a special school medical officer. Greater uniformity in medical inspection would be obtained, he thought, by the appointment of school medical officers devoting their whole time to their duties but he considered that it would tend to greater efficiency and economy of administration and prevent the overlapping of duties if gradually and as soon as practicable the whole country were divided into sanitary areas so that the post of medical officer of health and school medical officer could be combined.

The Question of a Medical Officer of Health for Somerset.

At a meeting of the Somerset county council held on Oct. 15th the recommendation of the sanitary committee to appoint a medical officer of health for the county, who would also carry out the new statutory requirements for the medical inspection of school children, was defeated after a long debate. 37 votes were given in favour of the appointment and 41 against it.

Oct. 29th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal Victoria Hospital, Edinburgh.

THIS hospital has again been added to. Two years ago a very successful bazaar was held for its benefit, the outcome of which was that the hospital authorities got a sum of about £13,000. Much of this has been spent in making important additions to the buildings. These were formally opened on Oct. 25th, in the presence of a distinguished and interested company. The chair was occupied by Lord Dunedin who referred to the position which the hospital occupied as an institution of national import. Dr. R. W. Philip, senior physician to the hospital, gave a sketch of the history of the institution. Dr. C. E. Underhill, President of the Royal College of Physicians of Edinburgh, spoke of the advance

which had been made in our ideas of how tuberculosis ought to be treated since Koch's discovery of the tubercle bacillus. Dr. W. Leslie Mackenzie, medical member of the Local Government Board, indicated what the Board had done in the matter. The formal opening was performed by the Right Hon. A. J. Balfour. Mr. Balfour delivered a long and interesting address on the Crusade against Tuberculosis and showed as complete an understanding of the question, both from the scientific and practical side, as if medical science were his specialty instead of Imperial affairs.

University of Edinburgh: General Council.

The half-yearly meeting of the general council of the University of Edinburgh was held on Oct. 25th, Principal Sir William Turner presiding. Dr. Joseph Bell and Dr. R. McKenzie Johnston were re-elected assessors to the University Court. The points of special interest brought out at the meeting were, firstly, that there had been a conference between representatives of the University Courts of Edinburgh and Glasgow which promised to be a valuable step in maintaining harmony between the universities and preventing opposition to ordinances promoted by either when they came to be submitted to the Privy Council. The second point was that there was to be a conference between the Scottish universities on the question of autonomy but that no definite scheme should at present be advanced. It seems clear that in some of the universities there is likely to be considerable opposition to the desire for autonomy which is certainly regarded in other quarters as an essential to satisfactory future progress.

Opening of the Royal Medical Society, Edinburgh.

This venerable society was formally opened on Oct. 25th by an address by Professor C. S. Sherrington of Liverpool. The society is a students' society and this is its 171st session. The chair was occupied by Dr. A. M. Drennan, the senior president of the society. Professor Sherrington selected as the subject of his address "Inhibition." The address took the form of an exposition and exhibition of his own work on this important subject. It was richly illustrated by means of lantern slides. The address was interesting and also suggestive, although the lecturer carefully avoided the psychological side of the subject. The lecture was attentively listened to by a large audience and was evidently much appreciated. The vote of thanks was proposed from the chair and supported by Sir A. R. Simpson.

An Interesting Case under the Workmen's Compensation Act.

A case which has much interest from the medical point of view has just been decided in the sheriff court. The plaintiff some years ago met with an accident whilst in the employment of the Glasgow corporation. It immediately began to pay him a weekly sum which represented half the wage he had been earning, and it took from him a receipt for this, describing it as "compensation," although no step was taken to have the agreement recorded by the registrar, who is in Scotland the sheriff-clerk. Later the corporation gave him a post with light work for which it paid him a weekly wage greater than the "compensation." After four years, however, the man again became unfit for work and his unfitness was admittedly due to the original injury. He then sought to return to the old arrangement and this being refused he applied for registration of the memorandum of the old agreement. The sheriff held that the workman was entitled to have the agreement registered notwithstanding the lapse of time. The ground of judgment was that so long as incapacity for work can be attributed to the original accident an agreement to pay compensation will stand good. But it will always rest with the workman to establish that the recurring illness is consequent upon the old accident and if he cannot do that, which in most cases he cannot, then he will lose his compensation altogether, for he is too late then to avail himself of the arbitration provisions of the Act.

Appointment of Physician Superintendent to the Crichton Royal Institution, Dumfries.

Dr. C. C. Easterbrook has been appointed to succeed Dr. J. Rutherford as physician superintendent to this important asylum. Dr. Easterbrook graduated in arts at Edinburgh in 1887 and in medicine in 1892. In 1894 he went to the Royal Edinburgh Asylum as one of Dr. T. S. Clouston's assistants. In 1902 he was appointed medical superintendent to the Ayr District Asylum, and his selection for the Dumfries Asylum was the outcome of the exceptionally good work done at the Ayr Asylum as a careful and frugal administrator, as well as a student of psychological medicine.

University of Aberdeen: Opening of Winter Session; Address on the Relation of Alcohol to Medicine.

The winter session at the University of Aberdeen commenced on Oct. 16th. There was a large attendance of students at all the classes. In the practice of medicine class Professor D. W. Finlay delivered an important lecture on Alcohol in Relation to Medicine. After referring to the expression of professional opinion recently published in THE LANCET, Professor Finlay gave an interesting *résumé* of past and present-day opinions as to the use of alcohol in medicine and summed up his advice to his hearers in the following propositions and recommendations: 1. Regard alcohol as a drug, a very valuable and dangerous one, and put it in the same category as morphine, strychnine, atropine, and the like. 2. Prescribe it with a due sense of responsibility and not after a routine method, having regard to each case on its own merits and considering such points as the state of the pulse especially, the age, previous health, and habits, and the severity and period of the attack. 3. Young patients of good constitution are better without it except in presence of heart failure or crisis of some kind. 4. Use the smallest doses possible and give strict injunctions as to time and mode of administration. Watch its effects carefully and omit it when the critical condition has passed. 5. Be specially sparing in chronic diseases, where in most cases it does not the slightest good but only leads to waste.

Oct. 29th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Chief Secretary for Ireland and Tuberculosis.

ON Oct. 28th a deputation from the County Councils' General Council of Ireland waited on Mr. Birrell, M.P., in Dublin Castle and laid before him the views of those represented as to the question of dealing with the problem of tuberculosis in Ireland and the responsibility of the Government in the matter. In reply, the Chief Secretary indicated that in the next session of Parliament legislation will be introduced with a view to making tuberculosis notifiable and to authorise the erection of sanatoriums. To many in Ireland it seems strange that it should be considered necessary to obtain Parliamentary powers to make tuberculosis notifiable, when it would have been much easier had the Irish Local Government Board followed the precedent set it in the circular of the Scotch Local Government Board which, accepting the view that the disease was infectious, adopted the natural conclusion that on the application of any public health body it would make it notifiable and, with certain modifications, apply to it the clauses of the Act dealing with infectious diseases. Apparently the Irish Local Government Board was afraid to take such a decided step.

Report of the Medical Officer of Health of Belfast for 1906.

Mr. H. W. Bailie, superintendent medical officer of health of Belfast, has just issued the annual report of the health of that city for 1906, but as he was only two and a half months in office during the period over which it extends he cannot be responsible for it or for its belated appearance. The city of Belfast covers 16,504 acres, with a population of 366,220—i.e., 24·9 persons to the acre. Others calculate it as 394,778, but all calculations are largely guesswork between the periods of two censuses. During 1906 the birth-rate was 31·0 (11,355 births), the death-rate 20·1 (7379 deaths), and the infantile mortality 143 per 1000 births (1635 deaths), the "zymotic" death-rate 2·5 per 1000, and the death-rate for pulmonary tuberculosis 2·7 per 1000, so that compared with an English or Scotch city the general death-rate and especially the consumption mortality are too high, and typhoid fever, of which there were 90 fatal cases as against 128 in 1905, prevails more than it should. Among the infectious diseases 1193 cases of scarlet fever were notified, and the total number of infectious diseases was 2749, 275 in excess of 1905, which was due largely to the epidemic of scarlet fever. Again, nine cases of typhus fever notified seems a large number, and whilst 551 cases of typhoid fever were notified there were 366 of "simple continued fever," a large proportion of which must have been typhoid fever. The term "simple continued fever" should not appear in a health

report in future. Of the total deaths, 7379, there were 331 from whooping-cough, 1015 from pulmonary tuberculosis, and 395 from other forms of tuberculous disease, 376 from diarrhœa, and 558 from pneumonia. Only 17 cases of puerperal fever were notified, while there were 11,355 births. As predisposing causes of pulmonary tuberculosis excessive dampness of soil and humidity of the air are given, and Ely and Salisbury are quoted as instances of places where, as the result of artificial drainage, a considerable reduction in the number of cases of pulmonary tuberculosis has occurred, but, as pointed out by Dr. A. Newsholme of Brighton, the moisture of the subsoil is not now regarded as an important factor in the causation of this affection, and Professor W. Osler in Dublin recently totally contradicted the theory of moisture as being of any moment as a causative factor in the problem. In Belfast there may be several factors causing the terrible mortality from this disease, but the problem will not be solved until the houses are rendered sanitary and until the advanced cases are isolated. Mr. Bailie condemns the conditions under which dairy cattle are often kept and says that during November he "made a large number of inspections of dairies and cowsheds and found many of them in a most unsatisfactory condition." The report is much larger and is more full of information than any which have yet appeared in connexion with the Belfast public health department, and I trust that the next one will show that the measures put in force in Belfast, as a result of the great public awakening on the question of public health in that city, have caused a distinct fall in the general death-rate as well as in that from preventable disease; an immense deal yet remains to be done until Belfast, a new city, takes its place alongside similar manufacturing English and Scotch cities in the adoption of public health reform.

Oct. 20th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Alcoholism and Syphilis in Hospital Practice.

AT the Hospitals Medical Society on Oct. 18th M. Fernet communicated the result of a research into the most frequent immediate causes of death from syphilis and alcohol in the hospitals. He found that sometimes the poison itself causes death, which especially applies to cases of cerebral syphilis or delirium tremens; sometimes it is an intercurrent affection which, grafting itself on to a soil prepared by syphilis or alcohol, runs an exceptional course, such as pneumonia or typhoid fever. In general hospitals alcoholism is the cause of death in a third of the cases, and in asylums for the insane the proportion rises to one half. As regards syphilis, the mortality in general hospitals is 2 per cent. of all deaths and in insane asylums it is as high as 30 per cent. In maternity hospitals and crèches the proportion of abortions is 5 per cent., and 20 per cent. of the deaths of newly born infants are due to syphilis.

The Hygiene of the Teeth in the Army.

The Under Secretary of State for War has recently issued a circular regarding the dental hygiene of the army. Up to the present time this matter has met with very little attention in the army, in spite of the fact that dental lesions have been responsible for a large number of days of absence through sickness; thus, in 1903 they caused 1845 soldiers to enter hospital, whose days of treatment amounted to 18,639. In the future the School of Hygiene at Val de Grâce will give a course of instruction in stomatology. When recruits are enrolled the examining surgeons will make special reports on the state of the mouth and teeth of each soldier, which will be kept up to date by a three-monthly examination. This new system will not only save a number of days of sickness amongst young soldiers in the future but it will instil into them habits of hygiene which they may keep up after they have left the colours and which they may spread around them to the public welfare.

The Treatment of Articular and Osseous Tuberculosis by Iodoform and Carbolic Acid.

M. Ménière described at the French Surgical Congress lately held in Paris the results of employing intra-articular and interstitial injections of an ethereal solution of iodoform in 23 patients suffering from osseous or articular tuberculosis; he obtained a cure in each case and four of them regained their functional activity. Of 63 cases treated by phenolisation or phenopuncture nine may be disregarded for various reasons; 54 remain, of which 51 have been cured, including several severe cases which would have justified an extensive resection or an amputation and which have recovered without relapse. From this number 14 cases must be taken in which the disease was not tuberculous, and this leaves 37 cures of tuberculous arthritis with re-establishment of function in seven of them.

Researches on Koch's Bacillus in the Air of Rooms Occupied by Tuberculous Persons.

At the recent French Medical Congress M. Le Noir and M. J. Camus made public their results on this subject. They took samples of air in hospital wards occupied by tuberculous patients, in most cases at 50 centimetres distance from the mouths of patients who coughed, and whose sputa contained bacilli, and in this way found Koch's bacillus in the air. The air was filtered in several ways, through cotton and through powdered sugar which was subsequently dissolved and injected into guinea-pigs. The dust from 53,000 litres of air was collected and centrifugalised, the deposit being used for inoculations. The samples were taken from both sunny and confined places. In no case did any inoculated guinea-pig develop tuberculosis and these experiments show the difficulty of tuberculous infection by inhalation, at least, in a hospital environment where the elementary conditions of hygiene are observed.

Alleged Cure of a Case of Muco-membranous Enteritis by the Occurrence of a Fire.

The following curious case is taken from a thesis for the Faculty of Medicine at Lyons. A woman, 30 years old, of a marked "neuro-arthritic diathesis," but very determined and vigorous, was attacked with muco-membranous enteritis in November, 1906. She had regular treatment for four months, but neither hygienic nor therapeutic measures served to abate the pain, constipation, and muco-membranous excretion. She became thin and feeble and often was obliged to keep her bed for a week or fortnight. In February, 1907, a fire broke out in her sick room. She had a great fright but kept her composure and two days later every symptom vanished immediately. All treatment was stopped and the patient, in order to prove the reality of her cure, ate the most indigestible and highly-spiced meals but has never had the slightest relapse in six months and has recovered her vigour and condition.

The International Association of Urology.

A general meeting of delegates of nearly every nation in Europe and America has just been held at the Necker Hospital under the presidency of Professor Albarran. It drew up the constitution of an International Association of Urology, the terms of which are very much the same as those of the similar association of surgery. A triennial congress is to be held, at which a very limited number of members of each nation will be present and only questions on the paper for the day will be discussed. The first Congress will be held in Paris during the first week of October, 1908. The permanent committee of the association is constituted as follows:—President: Professor Guyon (Paris). Vice-Presidents: Mr. Frederick Harrison (London) and Professor Israel (Berlin). General Secretary: M. Desnos (Paris). Treasurer: M. Pasteau (Paris). The committee for the 1908 Congress will be:—President: Professor Albarran (Paris). Vice-Presidents: Professor Posner (Berlin) and Professor Watson (Boston).

Obituary.

Dr. Sevestre has just died. He was physician to the Bretonneau Hospital and a member of the Academy of Medicine. He made an early special study of children's diseases and earned a well-deserved reputation in that branch as a prudent clinical observer and very safe diagnostician. The best known of his published works dealt with intubation in the treatment of diphtheria and the use of Roux's serum in the same disease.

Oct. 29th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

"The Burden of Calabria."

INVOLUNTARILY the language of the Hebrew prophets rises to the lips as one contemplates the doom of the much-afflicted Calabria. On Thursday, Oct. 24th, just as the

inhabitants of the region which had well-nigh disappeared in the earthquake of September, 1905, were celebrating with feasting and pipe and tabor and all the adjuncts of Southern merry-making the reconstruction of the ruined houses and the resurrection, moral and material, of the province, another "telluric storm," more appalling than the last, was felt to thrill below their feet, and, in a few minutes, the buildings shrank into a confused mass of rubbish amid the shrieks of the population which had just been vocal with joy. Italy, which had contributed generously towards the rehabilitation of the region engulfed two years ago, had sent reporters to celebrate in her daily journals the happy consummation of her efforts, and was condemned to read next morning the descriptions of the merry-making and the telegraphic announcements of the ruin and desolation in which those efforts were undone. A more terribly dramatic situation has rarely come about even in her own history, rich in such contrasts as it is, and the outside world looks on with the "pity and amaze" aroused by the spectacle of so much of the beautiful and romantic so suddenly changed into the ghastly and the gruesome. The response of the Italian kingdom to the cry of misery and despair which awoke her on the morning of the 25th has been immediate and energetic, conveying this among the few consolatory reflections inspired by her recent history: that in heart and soul and mind she is indeed united, and that Lombard and Piedmontese, Tuscan and Venetian, are as prompt to sympathise and to succour as if the calamity had befallen themselves and not a region at the remotest point of the mainland. First, in keeping with the traditions of his house, to bestir himself in the relief operations was King Victor Emanuel. Heading a preliminary subscription with 100,000 francs (£4000) he inspired the Government with his own energy and forethought, and Signor La Cava, Minister of Public Works, arrived by the first train available to explore the extent of the disaster and to organise the salvage corps and other agencies for the rehabilitation of the survivors. If the earthquake of two years ago numbered its victims by hundreds that of Oct. 24th counts them by thousands —whole towns like Ferruzzano and Sant 'Ilario having disappeared and the sappers and other military corps being still occupied in disinterring the corpses. Other centres of population have suffered, if less severely, still worse than in any previous visitation, while the cases of injury to body and limb are daily appealing to the medical department of the relief forces. That department has already done magnificent service. In imminent danger of life from the tottering walls and gables swaying in the wind, under the torrential downpour which seems an inevitable concomitant of Calabrian "telluric storms," surgeons like Dr. De Angelis at Brancaleone and Dr. Paglietti at Bova have performed operations and applied restorative treatment in no fewer than 69 cases, and that in the absence of the well-equipped ambulance available to the Red Cross on the battle-field—nay, in localities where the local apothecary had himself to be exhumed from the ruins of his pharmacy. Tents by the thousand are being shipped to the Calabrian littoral and pitched almost as soon as landed, while provisions and medicines, along with clothing and bedding, arrive by every train. Day by day the calamity seems to grow upon the relief army, intensively as well as extensively, and it will be weeks before it can afford to leave the spot. Meanwhile there is a stampede from the whole province—thousands of terror-stricken *contadini* making for the larger towns, with their little *lares* and *penates*, along roads bad at the best of times, now gaping in parts from the earthquake, where not ploughed by the rain torrents. Some, and these not a few, linger on the scene of their home and life-work, in the dazed condition, the listlessness, the hebetude, inseparable from such visitations—unable to help the relief parties and themselves requiring aid of every kind. Already, moreover, the decomposition of the bodies still unextricated from the ruins —the rescue work having already cost the lives of more than one of the military—is tainting the atmosphere and imparting another element of danger. Nothing, in short, seems wanting to drive the population from a soil they now look upon as doomed and to intensify that evil from which Italy suffers by the loss of so much of her manhood—emigration. Three terrible earthquakes within ten years, each more appalling than the former, leave small inducement to brave the probability of a fourth which, in turn, is likely to outdo the previous three; and so the depletion of all that is most virile in a region from which Italy was accustomed to expect reinforcement of her urban population and really robust recruits for her army and navy, proceeds at accelerated speed and in increased volume—to the dismay, not to say the despair, of all who are labouring for her reinstatement in the rank which is her right among the nations. The sympathies of all civilisation are with her in her present affliction and no doubt the liberality of the English-speaking world will be strongly induced to intervene. But, in this connexion, it may be well to utter a note of warning. If subscriptions are started for the relief of the suffering let the subscriber see to it that his dole is placed in proper hands—those of the British Consul, for example, or the British chaplain nearest the spot. 25 years ago the floods in the Venetian territory caused such misery that the generous English-speaking world contributed its thousands sterling to the relief fund, a large part of which never reached its destination. Similarly, two years thereafter the fearful cataclysm at Casamicciola, in the Bay of Naples, relaxed the purse-strings of the British public to an equally liberal largess, again to be depleted so that there was still so much in hand after the so-called relief had been effected that an imitation of the "ancient chariot races at Pompeii" was started. At the present juncture such a reminder may seem, to say the least, inopportune or ungracious, but Italy has yet some lessons to profit by, and one of these is this—not to treat the English-speaking world as if it were plethoric from wealth and likely to be benefited by a little wholesome depletion!

Oct. 27th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Antivaccination Agitation.

THE action of the antivaccinationists, who are becoming very noisy now that the outbreak of small-pox has been overcome, has prompted the Medical Council to issue a series of questions to all medical men with a view to collect authentic material for the purpose of refuting the allegations that have been made as to the harm done by vaccination. The three principal questions which each practitioner is requested to answer are as follows: (1) Do you know of any case of death caused by vaccination? (2) Do you know of any amputation having become necessary in consequence of vaccination? and (3) Do you know of any permanent injury to health caused to anybody by vaccination? When the answers have been received the opponents of vaccination will have to answer the charge of purposely spreading false information. They have already fallen considerably in popular estimation in consequence of a meeting which they organised quite recently and at which a Dr. Böhm, specially brought from Germany, spoke in defence of the "conscientious objector." It must be put down to the credit of the population that not only the overwhelming majority of those present were opposed to the theories propounded by this champion but that his statements were refuted even by non-medical men. Furthermore, Dr. von Ebner, Rector Magnificus of the University of Vienna, took part in the proceedings by delivering a spirited address of considerable length, in which he defended scientific research and the achievements of science against the ignorance and hostility of the masses. As the majority of the meeting adopted a motion in favour of vaccination disturbances broke out which caused a premature termination of the proceedings. It would appear that the antivaccinationists and their imported champion have given up any further idea of reopening a campaign just now.

Medical Students in Austria.

During last term there were 3106 medical students (of whom 132 were females) attending the six Austrian universities which possess medical faculties. Vienna heads the list with 1440 students and then come Prague with 587, Cracow with 470, Graz with 267, Lemberg with 184, and Innsbruck with 156. The total number has increased by 2 per cent. as compared with the year 1906, whilst the number of degrees and diplomas granted has fallen by 7 per cent. The number of qualified practitioners in Austria is now 12,000 and the population is 25,000,000, so that on an average there is one medical man to 2100 persons. This proportion, however, is reached only in few districts. There

are only 36 medical men in Austria still practising under the old regulations which entitle them to undertake surgical or obstetric work with the diploma of M.Ch. or Mag. Obstetr.

A Medical Party in Parliament.

The latest addition to the Parliamentary clubs in Austria has appeared in the shape of the "Parliamentary Medical Union," as it calls itself, formed by the medical members of Parliament and their political friends. The objects of this new club are in the first place to protect all medical interests in the debates of the House, in the next place to demonstrate the necessity of adequate medical measures in all sociological and hygienic steps taken by the Government and legislature, and, finally, to work in favour of a Ministry of Public Health which has hitherto been stoutly opposed by the ruling authorities. The number of active practitioners in the club is 11, then there are nine graduates who do not practise, and ten others who either have once studied medicine or have some connexion with it. The club numbers thus 30 members.

The Illness of the Emperor Francis Joseph.

The venerable Emperor Francis Joseph has been ill since Oct. 1st and the age of the monarch, who has passed his seventy-seventh year, has given much reason for anxiety. During the last military manœuvres the Emperor exposed himself too often to the dangers of catching cold in spite of the entreaties of his suite. Not knowing what it is to be ill, for in fact he has not even once during the 60 years of his reign required the services of a physician, he refused to take the necessary precautions, and a short time afterwards severe bronchitis of an influenzal type developed which keeps him confined to his room. It was a very difficult task to persuade the Emperor to stay indoors and the troublesome cough and the loss of appetite, as well as the debility incidental to his time of life, were actually alarming. A decided change for the better has, however, now set in and during the last five days the pyrexia, which has hitherto been of a remittent type, has disappeared.

Weather and Public Health.

The report of the board of health for the month of September and the first half of October has some very interesting features as regards the influence of the weather on the mortality and morbidity. Never since regular reports have been issued has there been such a favourable report for these six weeks as could be given this year. The mortality has fallen to 12 per 1000, the average being 18·5 per 1000 for this period, calculated from the records of the last 50 years, and diseases of the air passages do not show even half their usual prevalence. The beds in the Vienna hospitals have been more available for surgical cases, whilst in other years at this time they were occupied by patients suffering from illness caused by cold. The reason for such unusual conditions is to be found in the abnormally warm and beautiful weather reigning throughout Central Europe. Since August 31st there has not been a break of the fine weather in about three-fourths of the area of the Empire. The trees in many places have bloomed a second time, and whilst the northern parts of Germany and the southern region of the Alps have been visited by floods there has been a prolonged drought in Austria. The lack of rain has had a serious effect on the grass, so that milk is scarce and infants are suffering from intestinal troubles.

A Case of Gigantism.

Dr. Kienböck showed at a recent meeting of the Gesellschaft der Aerzte a sergeant in the army, 27 years of age, who presented some very marked features of gigantism. The length of his body was 202 centimetres (6 feet 9 inches) and he weighed 99 kilogrammes (222 pounds). The head was small, being only 56½ centimetres (22½ inches) in circumference; his hands and feet measured respectively 24 and 32 centimetres. He was very intelligent. The patient showed apart from these signs of simple giant growth also infantile symptoms. The growth of hair is very scanty, except on the scalp, and corresponds with the amount of hair of a youth 15 to 16 years of age. The ossification of the cartilages is normal. Furthermore, the man presents already signs of acromegaly and cachexia. He is pale and is becoming thin, his appetite is bad, pains occur in the long bones, the malleoli are thick and enlarged, the lower jaw is enlarged and prominent, but the face is not yet deformed. The hypophysis cerebri does not as yet cause any symptoms, only headache is present. The radioscope reveals an increase in the size of the gland and the sella turcica. According to Brissaud, the hypophysis, if diseased, causes in undeveloped persons symptoms of infantilism and gigantism; in grown-up persons acromegalic symptoms with cachexia. The earlier the hypophysis is disturbed the taller the person may grow. Thus there are cases known where the individuals were 260 centimetres (8 feet 8 inches) in height. One was a negro; his hypophysis was much enlarged but not pathologically changed. There is at present no definite reason known for the changes producing the disturbance of the growth of the gland and the increase of the height of the body is supposed to depend upon an internal secretion of this diseased gland.

Oct. 24th.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Medical Men in Smyrna.

GRAVE frauds in connexion with medical diplomas have been lately brought to light in the city of Smyrna. As is known, only those who finished their studies in the Imperial Medical School and those who, in possession of a foreign diploma, have satisfied the examiners in the so-called colloquium have the right to practise in the Ottoman Empire. It has been found out, however, that a good number of quacks with false diplomas as well as foreign physicians without the colloquium certificate have been practising in Smyrna. In April Zeky Bey, the inspector of public hygiene for the vilayet of Smyrna, published in all the local newspapers an official warning to all medical men recalling the necessity of a licence from the chief medical authorities before anyone could start in practice. Several months, however, passed and things remained unchanged, unauthorised practitioners continuing to attend and duping ignorant patients. This, of course, was not without its bad effects upon the public health. To put an end to this deplorable state of things a special commission has now been formed with the purpose of examining all the diplomas and exiling or punishing the unscrupulous quacks. The matter of proper medical qualification is not in a satisfactory state in Constantinople itself either. There are even there, in spite of a more or less strict supervision, numbers of individuals who practise medicine, and especially dentistry, without any qualification whatever. The abuse is particularly great among the local midwives. The lower classes of the population seldom call in a medical man to attend a confinement, always preferring one of the numerous *sage-femmes*. The latter are, for the most part, ignorant, superstitious, and without even the preliminary notions of sanitary and hygienic requirements. The mischief they do is often incalculable. From this fact it is not difficult to surmise what the state of things is in the provinces.

The Importation of Aniline Dyes.

There exists a law here that all aniline dyes which are frequently imported for the purpose of colouring various articles of food should only be passed by the Custom Houses when they are provided with a label bearing the following statement: "Libre de tout mélange de poison métallique" (free from any metallic poison). It has been, however, discovered lately by the laboratory of chemical investigation attached to the Administration of Public Hygiene that many of the dyes, though having the above label, contain arsenic. It is stated that certain German firms supply in particularly large quantities these injurious substances. To stop this abuse the Minister of Finance has given orders to the chiefs of the Custom Houses not to let any aniline dyes pass unless they have been found, after a thorough chemical analysis, to be free from harmful ingredients.

Poisoning by Cheese.

Quite an alarming number of persons have been seized lately in the health resort Brusa with severe symptoms of poisoning, such as frequent vomiting and violent intestinal pains. Closer inquiry and investigation showed that these persons had eaten a short time previously the so-called white cheese which is a common article of food in this country. This cheese has proved to be poisonous on several other occasions. The peasants in the provinces are in the habit of washing the udders of cows before milking them with a solution of corrosive sublimate for the purpose of curing

certain cutaneous eruptions which manifest themselves, especially at this time of the year. It is thus quite possible that some of this dangerous solution becomes mixed with the milk used for the preparation of cheese and is in this way the source of poisoning. The Governor-General of the place prohibited the further sale of the cheese.

Turkish Liquorice Root.

The *Levant Herald* has an article on the above subject which will be of interest to medical men. Liquorice root grows wild in the fields of Asia Minor and few attempts have been made thus far towards its cultivation. It grows chiefly in the Meander and Hermus valleys, and until 50 years ago was practically unused. It is stated that the root grown on the Meander plains is the best in the world, being superior to those found in Syria, Mesopotamia, Caucasus, Siberia, or China. The exporters of the roots lease liquorice-bearing lands for a period of from three to five years. Digging usually begins in October and is done by peasants, who at the end of each day deliver the roots to the various depôts and receive payment according to the quantity which they bring. The wages earned depend entirely upon the industry of the individual labourer. The roots are piled up and exposed to the air until about May or June. They then weigh only half as much as originally owing to the thorough drying process to which they have been subjected. The roots are sorted to obtain the qualities known as "débris" and "baguette," both of which are highly valued. The quantity and consumption of these two qualities are but small compared with the unsorted roots exported for the manufacture of liquorice powder. From the United States comes the principal demand for liquorice root which is shipped there in its natural state as raw material, being admitted free of duty. It is converted into liquorice paste for medicinal purposes and is also used for flavouring plug tobacco. Liquorice root in its original state can also be found in any drug store in America. Liquorice intended for European markets is first converted into paste in factories near Smyrna. It is shipped in cases which, when full, weigh about 330 pounds each. Recently small "loaves" have been prepared for export which weigh from 8 to 11 pounds each, 24 of which are packed in a single case. England is the chief purchaser of liquorice in the paste, only small quantities being exported to other European countries. This paste sells at 57*s.* 8*d.* in cases of 330 pounds and the "loaves" at 73*s.* 6*d.* in cases of 220 pounds.

Oct. 24th.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—H. J. W. Barlee, Middlesex and Lyons; C. F. Curtis (Sections I. and II.), Manchester; H. W. B. Danaher (Section II.), London Hospital; A. G. Gamble (Sections I. and II.), Leeds; C. G. Grey (Sections I. and II.), St. Bartholomew's Hospital; H. A. Parker (Section II.), St. Thomas's Hospital; P. D. Pickles (Sections I. and II.), and W. P. Pinder (Sections I. and II.) Leeds; and W. W. Stacey (Sections I. and II.) and E. Wharton (Sections I. and II.), Manchester.

Medicine.—F. M. Cunningham (Section II.), Royal Free Hospital; A. R. Hardy (Section I.), Manchester; H. E. Middlebrooke (Section I.), and G. W. Simpson (Sections I. and II.), London Hospital; and J. V. Steward (Sections I. and II.), W. H. Tomlinson, and E. Wharton (Sections I. and II.), Manchester.

Forensic Medicine.—A. R. Hardy and J. V. Steward, Manchester; H. B. Waller, London Hospital; and E. Wharton, Manchester.

Midwifery.—F. M. Cunningham, Royal Free Hospital; G. J. Eady, St. Bartholomew's Hospital; and E. Gandy, W. H. Tomlinson, and E. Wharton, Manchester.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—H. J. W. Barlee, A. G. Gamble, C. G. Grey, and E. Wharton.

UNIVERSITY OF CAMBRIDGE.—The managers of the Balfour Fund have re-elected R. C. Pannett, M.A., Fellow of Caius College, to the Balfour studentship for one year, and have granted £50 to W. E. Agar, M.A., Fellow of King's College.—The following degrees were conferred on Oct. 24th:—

M.D.—H. F. Tod, Trinity.
M.B.—R. G. Elwell, Trinity.

The first examination for medical and surgical degrees will begin on Monday, Dec. 9th.

TRINITY COLLEGE, DUBLIN.—At examinations held in Michaelmas term the following candidates passed in the subjects indicated:—

INTERMEDIATE MEDICAL (PART I.) EXAMINATION.

David L. M'Cullough, Eupbon M. Maxwell, Charles W. M'Kenny, Richard H. Mathews, Henry H. James, Walter E. Adam, John Gardiner, Hans Fleming, William M. Johnstone, Samuel R. Richardson, Francis J. A. Keane, Victor W. T. M'Gusty, Robert V. Dixon, and Gervase W. Scrcope.

PREVIOUS DENTAL EXAMINATION.

Physics and Chemistry.—Arthur A. Smith.
Anatomy and Institutes of Medicine.—James I. Kelly.
Materia Medica.—James I. Kelly and Ernest S. Friel.

PRELIMINARY SCIENTIFIC EXAMINATION.

Physics and Chemistry.—Percy D. Long, Samuel A. Lane, Richard Grandy, Francis V. Agnew, Frederick R. Dougan, Ralph J. R Mecredy, Cecil Rutherford, William Frier, and Henry J. Brown.
Botany and Zoology.—Albert E. Malone, Jacobus M. S. Gericke, Reginald Johnson, Charles F. Judd, Andries A. Louw, William Frier, and Ernest T. Jameson.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Lockemann of Leipsic has been appointed to the charge of the Chemical Department of the Institute of Infectious Diseases in succession to Professor Proskauer.—*Gratz:* Dr. Fritz Hartmann has been appointed Extraordinary Professor of Psychiatry and Neuropathology.—*Hanover:* Dr. Ludwig Kredel, the well-known surgeon, has been granted the title of Professor.—*Marburg:* Dr. Alfred Schwenkenbecher of Heidelberg has been appointed Extraordinary Professor of Medicine. Dr. Stoeckel has been appointed Professor of Gynæcology and Midwifery. Dr. Hess, *privat-docent* of Medicine, has been granted the title of Professor.—*Munich:* Dr. Brasch has been recognised as *privat-docent* of Medicine.—*Santiago (Chile):* Dr. Westenhoeffer, Prosector to the Moabit Hospital, Berlin, has been appointed by the Chilian Government Professor of General Pathology and Pathological Anatomy and Director of all the Laboratories of the Public Hospitals, the intention of the Government being to establish a complete system of practical teaching of pathology after the model of that of the best German universities.

MEDICAL SERVICE IN ST. PAUL'S CATHEDRAL.—The annual service in connexion with the Guild of St. Luke was held in St. Paul's Cathedral on Oct. 22nd. The congregation was a large one, many members of the medical profession being present in their academic robes. The scene was striking and impressive, and the musical portions of the service were exceedingly well rendered by a choir under the direction of Mr. Alfred Redhead, organist of St. Augustine's, Kilburn. The setting of the *Magnificat* and *Nunc Dimittis* was Stainer in A; the anthem "Hail, Gladdening Light," was sung to Martin's setting. The preacher was the Right Rev. the Suffragan Bishop of Kensington who delivered an eloquent discourse, taking his text from the fourth chapter of Revelation.

LEICESTER INFIRMARY.—Her Royal Highness the Princess Louise, who will be accompanied by the Duke of Argyll, has graciously consented to open the new wing of the Leicester Infirmary on Nov. 5th. The building when fitted and furnished will have cost £20,000. Her Royal Highness has also consented to open on the first day a three days' bazaar and sale of work in aid of the funds for the new Nurses' Home to be held in the new wing at the close of the opening ceremony. On the second and third days the bazaar will be opened by the Countess of Lonsdale and Sir Edward Wood (Mayor of Leicester) respectively. The architect's estimate for building and furnishing the new Nurses' Home, which will contain upwards of 100 bedrooms, is £20,000.

A DISPUTED LIFE ASSURANCE POLICY.—An interesting case in connexion with life insurance was discussed on Oct. 25th in the Court of Appeal. A resident of Plymouth obtained a policy from the Britannic Assurance Company. In the proposal he stated that he was of sober habits and that he knew of no additional facts which the company should know. The medical officer afterwards passed the man as a sound life. Three months later he hanged himself during despondency said to have been caused by excessive indulgence in alcohol. The insurance company eventually discovered that he had suffered from cirrhosis of the liver with hæmatemesis before he obtained the policy

and it refused to pay the money to the widow on the ground that the deceased had made a false declaration and suppressed material facts. She then sued the company for payment of the money and the verdict was given in her favour. On Oct. 25th the company appealed against this decision but was unsuccessful.

UNIVERSITY OF LONDON.—At the annual general meeting of the Old Students' Association at University College Dr. Tempest Anderson was elected President of the Association for the year 1907–08. Mr. George A. Aitken was elected treasurer and Mr. E. Denison Byles, B Sc., secretary. The annual dinner of the association will be held on Thursday, Dec. 5th, when Dr. Tempest Anderson will preside. The new wing that has recently been added to the College will be completed by that time and will be open to inspection. Former students of the College who desire to be present should communicate with Mr. Aitken at 42, Edwardes-square, Kensington, W.

NEGLECT OF CHILDREN.—At the Axminster (Devon) sessions held on Oct. 22nd a widow in receipt of parish relief was sentenced to three weeks' imprisonment for neglecting her three children. Evidence showed that when an inspector of the Society for the Prevention of Cruelty to Children and a medical man visited the cottage the children were desquamating from scarlet fever and were in a very dirty and neglected condition. The medical man ordered their removal to the isolation hospital, where, however, they were refused admission. They were also refused admission at the workhouse and consequently they had to be taken home again. It was stated that one of the children, a boy, delivered newspapers and that cases of scarlet fever had occurred at some of the houses which he served.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Livius Fürst, an eminent Berlin physician whose specialty was the diseases of children. He was the son of the former professor of Oriental languages in Leipsic and after working under Widerhofer in Vienna and Hennig in Leipsic took charge of the Pædiatric Department of the Policlinic in Leipsic. For the last 14 years he had practised in Berlin. Many important papers, especially dealing with therapeutics, have come from his pen. He was 67 years of age. —Dr. Garand of the St. Etienne Hospitals.—Dr. W. J. Sneed, formerly professor of anatomy in the Vanderbilt University, Nashville.—Dr. Peter M. Wise, formerly professor of psychiatry in the University of Vermont, Burlington.—Dr. Krillebrew, professor of medicine in the University of Alabama.

CONTINENTAL ANGLO-AMERICAN MEDICAL SOCIETY: ANNUAL MEETING AND DINNER.—The annual meeting of this society was held in Paris on Oct. 18th. Dr. A. R. Coldstream (Florence) was in the chair and the following members were present: Dr. G. H Brandt and Dr. J. Egerton Brandt (Nice and Royat), Dr. Cormack (Vichy and Hyères), Dr. Cafferata (Spa), Dr. E. H. Douty (Cannes). Dr. Heinemann (Bad-Nauheim), Dr. H. J. Johnston Lavis (Beaulieu), Dr. Treves-Barber (Geneva) Dr. Sillery Vale (Arcachon), Dr. Bull, Dr. Magnin, Dr. Gros, Dr. Jarvis, Dr. Rivière, Dr. Marucheau, Dr. W. Turner, Dr. A. A. Warden, and Dr. Leonard N. Robinson (Paris). The honorary secretary presented his report and announced that it was proposed to place a brass tablet to the memory of the Hon. Alan Herbert, M.D., in the chapel of the Hertford British Hospital. The honorary secretary announced to the society that he would resign his office at the next annual meeting. After the report of the treasurer had been approved, the voting papers were examined to fill the vacancies on the executive committee, resulting in the election of Dr. G. Sandison Brock (Rome). Dr. Magnin and Dr. Warden (Paris), and Mr. A. Hugh Gibbon (Naples). The following five candidates for membership were duly elected: Mr. Frederick Michael Bishop (Varenna and Cadenabbia); Dr. Marc de Lewis (Nice); Dr. Bryden Glendining (Madrid); Dr. Frederick Aylmer Holt (Nice and Aix-les-Bains); and Dr. Arthur Gerald Welsford (Rome). The general business was then taken. It was decided that henceforth the executive committee should be a representative one in which every member should sit in alphabetical rotation for one year, Paris, France, Italy, and Egypt being represented by three members each, and all countries having more than two members by one each. Should any member so elected refuse or be unable to serve, then the next member in alphabetical order shall be called upon to do so. It was agreed that the medical secretary should vacate his seat at the end of every three years and should not be eligible for re-election for the next six years, and that he should be empowered to employ a lay secretary on terms to be approved by the executive committee. In the absence of Dr. Danvers, Dr. Robinson announced that motion No. 6 fell to the ground. This motion dealt with the proposal to hang up a notice in the various offices of the Wagon Lits Company and at Thomas Cook and Sons announcing that the Anglo-Saxon travelling public might obtain a list of fully qualified English and American physicians resident and practising on the continent of Europe and North Africa (Egypt, Algiers, and the Canary Islands), these companies being supplied by the society with lists of members for distribution to those who asked for them. Before this motion was placed on the business of the meeting Dr. Robinson wrote to Professor W. Osler who, after consultation with Sir R. Douglas Powell and Sir Dyce Duckworth, replied "that there could be no possible objection to such a notice, and it would certainly be a great help and convenience to the travelling public." The Wagon Lits Company when approached on the subject asked £500 per annum for putting up such a notice in their 30 principal agencies. Thomas Cook and Sons, after inquiring from their agents in all places in which members of the society practised, said that they "find it impossible to file the list of members because the list is not a complete list of qualified men but merely a list of such of these as are members of the society." It would, therefore, be to the advantage of the society and of the travelling public if the list could be made as complete as possible by the inclusion in it of all duly qualified and eligible British and American practitioners on the continent of Europe and North Africa. After other business a hearty vote of thanks to the chairman brought the meeting to a close.—The annual dinner of the society was held in the evening at the Hotel de Palais d'Orsay. Mr. Frank H. Mason, United States Consul-General in Paris, occupied the chair, and 28 members and their guests were present. The guests included Professor Tuffier (surgeon to the Beaujon and Hertford British Hospitals), Dr. Chapman (Hertford British Hospital), Dr. Leredde, Dr. Desfosses, Dr. Lutaud, Dr. Paul Lutaud, and Father McMullan. In addition to members attending the afternoon meeting Mr. J. A. Goodchild (Bordighera), Dr. A. S. Gubb (Algiers and Aix-les-Bains), and Dr. Koenig (Paris) were present. The chairman proposed the health of the members of the three nations which were nearest to all their hearts, "The King of England, the President of the United States, and the President of the French Republic." The three nations, he said, were allied by race, by interest, and by sympathy, and were in the van of intellectual progress and civilisation. The chairman next proposed "Success to the Society," wishing it long life and continued vitality and an increase of its sphere of usefulness. Dr. Coldstream replied on behalf of the society. Dr. Douty proposed "The Guests," coupled with the name of Professor Tuffier, whom he was glad to hear had recently been appointed to the post of surgeon to the Hertford British Hospital, so that he now became one of them and was a living expression of the "entente cordiale." Professor Tuffier returned thanks and said that it gave him great pleasure to be surgeon to the Hertford British Hospital. He would do his utmost to maintain the efficiency of the hospital and he hoped the "entente cordiale" would long continue. During his connexion with English people he had been particularly struck by the "humour" of the English, a purely national product due to "entente" between the brain and the stomach. Father McMullan also replied on behalf of the guests. Dr. Magnin proposed the health of the chairman, and Mr. Mason's reply brought to a close one of the most enjoyable dinners of the society.

MEDICAL MEN AND MUNICIPAL WORK.—On Tuesday, Oct. 22nd, Dr. Henry Gervis was the guest of honour at a complimentary banquet in recognition of his work as Mayor of Brighton. It is no sinecure to be mayor of an important borough like Brighton but during the municipal year now fast drawing to a close Dr. Gervis filled the office of chief magistrate with satisfaction to all parties, and the banquet was attended by a thoroughly representative company of townsmen, showing that his work had been appreciated. There is room for more representatives

of the medical profession in municipal life; questions in which skilled opinion and advice are absolutely essential are continually arising in our great municipalities. Nothing is more important to Brighton—a town the prosperity of which depends upon its visitors—than that it should always have a clean bill of health, and thus can be seen the necessity of having on the governing authority those whose whole lives are spent in the preservation of the public health.

BOOKS, ETC., RECEIVED.

ALEMBIC CLUB, THE, Edinburgh. (Agents: JAMES THIN, Edinburgh; and SIMPKIN, MARSHALL, HAMILTON, KENT AND CO., Limited, London.)

Alembic Club Reprints. No. 17. Medico-Physical Works. Being a Translation of *Tractatus Quinque Medico-Physici* by John Mayow, LL.D., M.D. (1674). Price not stated.

APPLETON, SIDNEY, 25, Bedford-street, Covent Garden, London, W.C.

Youth, its Education, Regimen, and Hygiene. By G. Stanley Hall, Ph.D., LL.D., President of Clark University and Professor of Psychology and Pedagogy. Price 6*s*. net.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, London, W.C.

Peventable Blindness. An Account of the Disease known as the Ophthalmia of the New-born, and of its Effects; with a Plea for its Suppression. By N. Bishop Harman, M.A., M.B. Cantab., F.R.C.S. Eng., Ophthalmic Surgeon to the Belgrave Hospital for Children; Chief Clinical Assistant, the Royal London Ophthalmic Hospital, Moorfields; Senior Ophthalmic Assistant, the Middlesex Hospital; Oculist (with Care of Blind Children), London County Council Schools. Price 2*s*. 6*d*. net.

Cancer. By G. Sherman Bigg, F.R.C.S. Edin., M.R.C.S. Eng., L.S.A. Price 3*s*. 6*d*. net.

BELL, GEORGE, AND SONS, London. (THE CENTURY COMPANY, New York.)

A Laboratory Outline of General Chemistry. By Alexander Smith, B.Sc. Edin., Ph D., Professor of Chemistry in the University of Chicago. Third edition. Revised in collaboration with William J. Hale, Instructor in General Chemistry in the University of Michigan. Price 2*s*. 6*d*.

BRAUMÜLLER, WILHELM, Wien und Leipzig.

Nierendiagnostik und Nierenchirurgie. Von Dr. G. Kapsammer. Teil I. und Teil II. Price K.24, or M.20.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

The Operations of Surgery. Intended especially for the Use of Those recently appointed on a Hospital Staff and for Those Preparing for the Higher Examinations. By W. H. A. Jacobson, M.Ch. Oxon., F.R.C.S., Consulting Surgeon, Guy's Hospital; and R. P. Rowlands, M.S. London, F.R.C.S., Assistant Surgeon and Surgeon to the Orthopædic Department, Guy's Hospital, Joint Teacher of Operative Surgery in the Medical School. Fifth edition. Volumes I. and II. Price 42*s*. net.

CHURCH OF ENGLAND TEMPERANCE SOCIETY, 4, The Sanctuary, Westminster, London, S.W.

Side-lights on Alcohol and its Action on the Human Organism. By "Medicus Abstinens." Price 2*s*. 6*d*. net.

COLLINGRIDGE, W. H. AND L., 148 and 149, Aldersgate-street, London, E.C.

Chicken Rearing and the Management of Incubators. By A. Tysilio Johnson, Author of "Fowls for Profit," "Ducks and Geese for Profit," &c. Edited by T. W. Sanders, F.L.S., Editor of "Farm and Garden." Price 1*s*. net; cloth, 1*s*. 6*d*.

FUNK AND WAGNALLS COMPANY, London and New York.

The Standard Family Physician. A Practical International Encyclopædia of Medicine and Hygiene especially Prepared for the Household. Edited by Sir James Crichton-Browne, M.D., LL.D., F.R.S., Lord Chancellor's Visitor in Lunacy, London; Sir William H. Broadbent, Bart., K.C.V.O., M.D., F.R.S., late Physician-in-Ordinary to the King and Prince of Wales; Alfred T. Schofield, M.D., M.R.C.S.E., Vice-President British College of Physical Education, Vice-President, National Health Society, Hon. Physician Friedenheim Hospital, London; Professor Karl Reissig, M.D., &c., Hamburg, Germany; and Smith Ely Jelliffe, A.M., M.D., Ph.D., Columbia University, New York, U.S.A. With the Assistance of Many European and American Specialists in the Treatment of Diseases and Experts in Medicine and Surgery. Price not stated.

GREEN, WILLIAM, AND SONS, Edinburgh and London.

Essentials of Human Physiology. By D. Noël Paton, M.D., B.Sc., F.R.C.P. Ed., Professor of Physiology, University, Glasgow. Third edition, revised and enlarged. Price 12*s*. net.

G. P. PUTNAM'S SONS, New York and London.

Diagnosis of Organic Nervous Diseases. By Christian A. Herter, M.D., Professor of Pharmacology and Therapeutics at Columbia University, Visiting Physician to the City Hospital. Revised and enlarged by L. Pierce Clark, M.D., Visiting Neurologist to the Randall's Island Hospitals and Schools, Consulting Neurologist at the Manhattan State Hospital, N.Y. Price 12*s*. 6*d*. net.

HOMŒOPATHIC PUBLISHING CO., 12, Warwick-lane, London, E.C.

The Enthusiasm of Homœopathy. With the Story of a Great Enthusiast. By John H. Clarke, M.D. (Reprinted from the Journal of the British Homœopathic Society, January, 1907.) Price not stated.

J. B. LIPPINCOTT COMPANY, Philadelphia and London.

Lippincott's New Medical Series. Edited by Francis R. Packard, M.D. Röntgen Rays and Electro-Therapeutics. With Chapters on Radium and Phototherapy. By Mihran Krikor Kassabian, M.D., Director of the Röntgen Ray Laboratory of Philadelphia Hospital. Price 15*s*. net.

Human Anatomy, Including Structure and Development and Practical Considerations. By Thomas Dwight, M.D., LL.D., Parkman Professor of Anatomy in Harvard University; J. Playfair McMurrich, Ph.D., Professor of Anatomy in the University of Michigan; Carl A. Hamann, M.D., Professor of Anatomy in Western Reserve University, and George A. Piersol, M.D., Sc.D., Professor of Anatomy in the University of Pennsylvania; and J. William White, M.D., Ph.D., LL.D., John Rhea Barton Professor of Surgery in the University of Pennsylvania. With 1734 illustrations, of which 1522 are original and largely from dissections by John C. Heisler, M.D., Professor of Anatomy in the Medico-Chirurgical College. Edited by George A. Piersol. Price 30*s*. net.

KARGER, S., Karlstrasse, 15, Berlin, N.W.

Über das Tasten normaler Magenteile. Nebst Bemerkungen zur Höhenbestimmung der Bauchorgane. Von Dr. Theodor Hausmann, Orel. Price M.1.

Die Krankheiten des Verdauungskanals (Oesophagus, Magen, Darm). Ein Leitfaden für praktische Aerzte. Von Dr. Paul Cohnheim Spezialarzt für Magen- und Darmkrankheiten in Berlin. Zweite vermehrte und neubearbeitete Auflage. Price M.6.

LONGMANS, GREEN, AND CO., 39, Paternoster-row, London, E.C.; and New York, Bombay, and Calcutta.

A Course of Practical Organic Chemistry. By T. Slater Price, D.Sc., Ph.D., F.I.C., Head of the Chemical Department of the Birmingham Municipal Technical School; and Douglas F. Twiss, M.Sc., A.I.C., Lecturer on Chemistry at the Birmingham Municipal Technical School. Price 3*s*. 6*d*.

The Reduction of Cancer. By the Hon. Rollo Russell. Price 1*s*. 6*d*. net.

Text-book of Organic Chemistry for Medical Students. By Dr. G. v. Bunge, Professor of Physiological Chemistry in the University of Basel. Translated with Additions by R. H. Aders Plimmer, D.Sc. Lond., Assistant Professor of Physiological Chemistry and Fellow of University College, London. Price 6*s*. net.

MACMILLAN AND BOWES, Cambridge. (MACMILLAN AND CO., LIMITED, London.)

Malaria: a Neglected Factor in the History of Greece and Rome. By W. H. S. Jones, M.A. With an Introduction by Major R. Ross, F.R.S., C.B., and a Concluding Chapter by G. G. Ellett, M.B. Price 2*s*. 6*d*. net.

MACMILLAN AND CO., LIMITED, St. Martin's-street, London.

A System of Medicine. By Many Writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge, Fellow of Gonville and Caius College; and Humphry Davy Rolleston, M.A., M.D., F.R.C.P., Physician to St. George's Hospital and to the Victoria Hospital for Children, Sometime Fellow of St. John's College, Cambridge. Volume III. Price 25*s*. net.

MALOINE, A., 25-27, Rue de l'École-de-Médecine, Paris.

Technique Oto-Rhino-Laryngologique, Sémiotique et Thérapeutique. A l'Usage de l'Étudiant et du Médecin Praticien. Par E. Escat. Price Fr.8.

"MODERN ASTROLOGY," Office of, 9, Lyncroft-gardens, West Hampstead, N.W. (FOWLER, L. N., AND CO., 7, Imperial Arcade, London, E.C.)

Medical Astrology. By Heinrich Däath. Price 1*s*. net.

NISBET, JAMES, AND CO., LIMITED, 22, Berners-street, London, W.

Cancer of the Stomach. By A. W. Mayo Robson, D.Sc., F.R.C.S., Member of Council, Royal College of Surgeons; Vice-President, Royal College of Surgeons, 1902-03 and 1904-05; Hunterian Professor of Surgery and Pathology, 1897, 1900, and 1904; Bradshaw Lecturer, 1905; Hon. Surgeon, *Dreadnought* Hospital, and Lecturer, London School of Clinical Medicine, 1906; Consulting Surgeon to the General Infirmary at Leeds and to the Keighley and Batley Hospitals. Price 4*s*. 6*d*. net.

STUBER, A. (C. KABITZSCH), Würzburg.

Lehrbuch der Spezifischen Diagnostik und Therapie der Tuberkulose. Für Aerzte und Studierende. Von Dr. Bandelier, Dirigierendem Arzte der Lungenheilstätte Cottbus; und Dr. Roepke, Dirigierendem Arzte der Eisenbahnheilstätte Melsungen. Price, paper, M.4.; bound, M.4.80.

Taschenbuch der Therapie mit besonderer Berücksichtigung der Therapie an den Berliner, Wiener u.a. deutschen Kliniken. Herausgegeben von Dr. M. T. Schnirer, Redakteur der "Klinischtherapeutischen Wochenschrift." Vierte vermehrte und verbesserte Ausgabe. Price M.2.

"THE MINING JOURNAL," 46, Queen Victoria-street, London, E.C.

A Key to Cornish Mining. By E. W. Meyerstein. Price 5*s*. net.

VIGOT FRÈRES, 23, Place de l'Ecole-de-Médecine, Paris.

Traité de l'Hypnotisme Expérimental et Thérapeutique, ses Applications à la Médicine, à l'Éducation et à la Psychologie. Par le Dr. Paul Joire, Professeur à l'Institut Psycho-Physiologique de Paris, Président de la Société Universelle d'Études Psychiques. Price Fr. 4.

Introduction à la Psychiatrie Clinique. Par le Professeur Emil Kraepelin, Professeur de Psychiatrie à l'Université de Munich. Traduite sur la Seconde Édition Allemande par MM. Albert Devaux et Prosper Merklen. Préface de M. le Docteur Dupré, Professeur agrégé à la Faculté de Médecine de Paris, Médecin des Hôpitaux et de l'Infirmerie Spéciale de la Préfecture de Police. Price Fr.12.

Instruction pour le Traitement par l'Hypérémie du Privat Docent Docteur Schmieden, Chirurgien en Chef de la Clinique de

l'Université de Bonn. Traduit de l'Allemand par Mme. Fortoul Infirmière de la Croix-Rouge. Préface de M. le Dr. Tuffier, Professeur Agrégé à la Faculté de Médecine, Chirurgien de l'Hôpital Beaujon. Price Fr.1.25.

VOGEL, F. C. W., Leipzig.

Die Arthritis Deformans Coxae und die Variationen der Hüftpfannenstellung, zugleich ein Betrag über den Wert der Roser-Nélaton'schen Linie und die Bedeutung des Trochanderhochstandes bei Hüftgesunden. Von Dr. Georg Preiser in Hamburg. Price M.2.

Spezielle Chirurgische Diagnostik. Für Studierende und Aerzte. Bearbeitet von Professor Dr. F. de Quervain, P.D. der Chirurgie an der Universität Bern, Oberarzt an der Chirurgischen Abteilung des Spitals in La Chaux-de-Fonds. Price M.15.

WILEY, JOHN, AND SONS, 45, East Nineteenth-street, New York. (CHAPMAN AND HALL, LIMITED, London.)

Clean Water and How to Get it. By Allen Hazen, Member of the American Society of Civil Engineers, the Boston Society of Civil Engineers, the American Water Works Association, the New England Water Works Association, the American Public Health Association, the Society of Arts, &c. Price cloth, $1.50 (6s. 6d. net).

WRIGHT, JOHN, AND CO., Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

The Re-education of Co-ordination by Movements: with Special Reference to Locomotor Ataxy. Accompanied by Mounted Charts for the Movement Exercises. By Arthur G. Dampier-Bennett, M.R.C.S., L.R.C.P. Lond., Kingstown, co. Dublin, Visiting Physician, Royal Marine Hotel Baths, Author of "Physical Methods in the Treatment of Heart Disease." Price 10s. 6d. net.

Pelvic Inflammations in the Female: Being the Ingleby Lectures delivered at the University, Birmingham, May 9th and 16th, 1907. By Thomas Wilson, M.D. Lond., M.Ch. Birm., F.R.C.S. Eng., Obstetric Officer to the General Hospital, Birmingham, Physician to In-patients at the Birmingham Maternity, &c. Price 3s. 6d. net.

Physical Methods in the Treatment of Heart Disease. By Arthur G. Dampier-Bennett, M.R.C.S. Eng., L.R.C.P. Lond., Author of "The Re-education of Co-ordination by Movements," "Thermal Methods of Treating Chronic Arthritis," &c., Visiting Physician to the Royal Marine Hotel and Medical Baths, Kingstown. Price 3s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BASHFORD, H. H., M.B., B.S. Lond., has been appointed Assistant Medical Officer to the General Post Office.

BURKE, GERALD T., M.B., B.S. Lond., has been appointed Senior House Physician at the Prince of Wales' General Hospital, Tottenham, N.

HARRIS, HENRY E., L.D.S., has been appointed Dental Surgeon to the Royal National Orthopædic Hospital of London.

JAGO, W. J., M.R.C.S., L.R.C.P., has been appointed Assistant House Surgeon to the Taunton and Somerset Hospital.

LEWTHWAITE, ALFRED, M.B. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Resident Medical Officer at the Winsley Sanatorium.

REES, EDWARD DAVIES, L.R.C.P. Lond., M.R.C.S., L.S.A., has been appointed Medical Officer of Health by the Newtown and Llanidloes Rural District (Montgomeryshire) Council

STIDSTON, C. A., M.B., B.S. Lond., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Resident Medical Officer and Secretary to the General Infirmary, Hertford, Herts.

YOUNG, MEREDITH, M.D. Edin., D.P.H. Vict., has been appointed Medical Officer of Health of Marylebone.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Senior and Junior Resident Medical Officers for six months. Salary at rate of £20 and £10 respectively, with board and lodging.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road, Birkenhead.—House Surgeon. Salary £100, with board, residence, and laundry.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Assistant House Surgeon. Salary £50 per annum, with board, rooms, and attendance.

BRISTOL, UNIVERSITY COLLEGE.—Demonstrator of Physiology.

CHELTENHAM GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board and apartments.

CHINA, SHANGHAI NANKING RAILWAY.—Medical Officer. Salary, &c., at least £500 per annum.

COLCHESTER, ESSEX AND COLCHESTER GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, washing, and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Senior and Junior House Surgeons. Salary of former £100, and of the latter £50 per annum, with rooms, board, washing, and attendance.

DORCHESTER, COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £140, rising to £180, with board, &c.

DOWNPATRICK, DOWN DISTRICT LUNATIC ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130, rising to £150 per annum, with apartments, board, washing, &c.

DUBLIN, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION FOR IRELAND.—Resident Medical Officer. Salary £300 per annum, with house.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £100 per annum, with board, residence, attendance, and washing.

GLASGOW PROVINCIAL COMMITTEE FOR THE TRAINING OF TEACHERS.—Assistant Lecturers on Hygiene. Salary £100 per annum.

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £30 per annum, with board, residence, and washing.

LEICESTER, LEICESTERSHIRE AND RUTLAND ASYLUM.—Junior Medical Officer. Salary £130, rising to £160, with board, lodging, and washing.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60, with board and lodging

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Medical Officer. Salary £180 per annum. Also Assistant Medical Officer. Salary £100 per annum.

MIDHURST, SUSSEX, KING EDWARD VII. SANATORIUM.—Pathologist, unmarried. Salary £250 per annum, with board, lodging, and attendance.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Honorary Dental Surgeon.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Physician-in-Charge of the Skin Department. Also Assistant Physician.

OLDHAM INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board, residence and washing.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone road, N.W.—Resident Medical Officer for Out-patient Department for four months. Salary at rate of £60 per annum, with board, residence, and washing.

ST. GEORGE'S HOSPITAL, S.W.—Senior Radiographer. Salary £100 per annum.

ST. MARK'S HOSPITAL FOR FISTULA, &c., City-road, E.C.—Resident House Surgeon. Salary at rate of £80 per annum, with board and washing.

SHEFFIELD ROYAL INFIRMARY.—Senior Assistant House Surgeon, also Junior Assistant House Surgeon. Salary of former £70 and of latter £65 per annum, with board and residence.

SOUTHAMPTON FREE EYE HOSPITAL.—House Surgeon. Salary £70 per annum, with board and residence.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon. Salary £50 per annum, with board, apartments, and washing.

SUNDERLAND INFIRMARY.—House Surgeon. Salary £80 per annum, with board, residence, and washing.

WAKEFIELD, WEST RIDING ASYLUM.—Assistant Medical Officer. Salary £150, rising to £180 per annum, with apartments, board, washing, and attendance.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House Surgeon, unmarried. Salary £120 per annum, with residence and board.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, &c., 73, Welbeck-street, W.—Resident Medical Officer for six months, renewable. Salary at rate of 50 guineas per annum, with residence, board, washing, and attendance. Also In-patients' Physician.

YORK, NORTH RIDING LUNATIC ASYLUM, Clifton.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, rising to £200, with apartments, board, washing, and attendance.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Haywards Heath, in the county of Sussex.

Births, Marriages, and Deaths.

BIRTHS.

BARKER.—On Oct. 21st, at Marburg, Watford, the wife of J. C. Barker, of a daughter.

GOULD.—On Oct. 24th, at Castle Hill House, Shaftesbury, the wife of Harold Utterton Gould, M.B., B.C., of a son.

GREENE.—On Oct. 21st, at Crossbrook-street, Cheshunt, the wife of William A. Greene, M.R.C.S., of a son.

HAINES.—On Oct. 23rd, at Brookside, Winfrith, Dorsetshire, the wife of Frederick Haselfoot Haines, M.R.C.S., L.R.C.P., D.P.H., of a daughter.

PARKER.—On Oct. 26th, at Staffa Lodge, Guildford, the wife of Herbert F. Parker, M.D. Cantab., of a daughter.

MARRIAGE.

BRIDGER—EDIE.—On Oct. 25th, at St. Cuthbert's Parish Church, Edinburgh, James Frederick Edmund Bridger, M.B., B.S. Lond., D.P.H., to Katharine, second daughter of Mr. and Mrs. Edie, Upper Gilmore-place, Edinburgh.

DEATHS.

CONRY.—On Oct. 24th, at Thundersley, Essex, John Templer Crosbie Conry, M.D.

JOLL.—On the 28th of October, at 1, Elm Grove-road, Ealing Common, Boyd Burnett Joll, M.B. Lond., M.R.C.S., formerly of Woolton, Liverpool, and Bedford-square, W.C.

LIGHTFOOT.—On Oct. 23rd, at Trevor House, Leyburn, John Parker Lightfoot, M.R.C.S., L.R.C.P., aged 39.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

EPSOM COLLEGE.

Mr. Percival Turner has sent the following letter to as many Old Epsomians as he can trace. He asks us to publish it in order that anyone to whom he has omitted to send the letter may have the opportunity of seeing it in our columns.

ARCHDEACON THORNTON MEMORIAL.

You are probably already aware of the recent decease of Archdeacon Robinson Thornton, D.D., who in 1855 was appointed the first Head Master of Epsom College and who devoted 15 years of his life to the interests and welfare of the school. He was greatly respected and beloved by all who knew him, whether connected with the school or not. From his retirement in 1870 until his death he maintained a warm affection for the College and was ever ready to help it forward in any way he could.

With a view to perpetuate his memory in the school he was so much attached to, it has been suggested that a sum of money should be raised by subscription from Old Epsomians and others interested in the College, for the purpose of establishing some permanent tribute to his memory at Epsom. A window in the chapel, a new class room, a laboratory, and other objects have been suggested, but this can be better decided when it is known what funds are available.

I feel sure it will be a pleasure to you to help with a donation towards so worthy a cause. Sums of 10*s.* 6*d.* and upwards will be gratefully received and acknowledged if sent to "The Thornton Memorial Fund" at the Capital and Counties Bank, Epsom, to the Hon. Treasurer, Henry Morris, Esq., F.R.C.S., 8, Cavendish-square, London, W., or to any of the committee.

Requesting the favour of an early reply,

Yours very truly,

PERCIVAL TURNER, Hon. Sec.

The following have consented to act as a committee to carry out the proposed scheme:—Henry Morris (honorary treasurer), Clement L. Smiles, Frederick Taylor, Bilton Pollard, James F. Goodhart, Edred M. Corner (representing the Epsomian Club), Percival Turner (Honorary Secretary).

MOTOR-CARS FOR MEDICAL MEN.

To the Editors of THE LANCET.

SIRS,—In reply to "Mercury's" inquiry as to a motor for medical practice in a hilly country perhaps as a resident on the northern heights of London my experience may be of help to him. I commenced motoring in August, 1904, with a single cylinder French car, but after two and a half years with this type of car I came to the conclusion that the amount of vibration and noise, together with the stress on the engine and the slowness of progression while working on hills, rendered such a type unsuitable for practice purposes. At the same time the fact remains that I was able to do my work and gain experience with that type. In the early part of this year I was fortunate enough to be able to obtain a four-cylinder car with side entrance body and Cape-cart hood and the comfort of a quiet engine; the convenience of the side entrance and the ease with which it will climb the hill make it all that is desired for medical practice. There is no difficulty in manœuvring the car in traffic, though, of course, the rate of travel in the London streets is but very slightly, if at all, greater than with the single cylinder car, but the time saved in climbing hills is very marked. I would strongly urge your correspondent to be content with a Cape cart hood for a covering and to dress himself as a motorist and not in a top hat and frock coat when on his car. As to the cost of running the car, that is no doubt heavier in London than in the country, owing to rent, &c., which has to be paid. I have kept a strict account of my outgoings and find that it has cost me about £200 per annum to run the car hitherto; that does not include depreciation or interest on capital, and it does include a *clean* and *tidy* chauffeur and a properly kept-up car. I keep an oversight on all matters connected with the car and assist myself in any difficult or interesting operations upon it. My chauffeur came to me straight from a school and now knows his work thoroughly well. I might add that with a laudable desire to support home industries and have the convenience of being near the manufacturers (to say nothing of the British screw-threads and spanners), I set out this year to get an English car and I selected a 15-h.p. Enfield, which, though in its first year on the road, seemed to me to promise well. As with every other manufacturer, experience has been gained during the first year of the car on the road, and I believe that this machine will become a popular model. The firm also deserve special commendation for the manner in which it has treated its clients who have gone through this stage with it, and also for the rapidity with which it carries out repairs. To those who have to hire horses when the car is under repair this is no small recommendation, to my mind.

I am, Sirs, yours faithfully,

Hampstead, Oct. 22nd, 1907. A 5663.

To the Editors of THE LANCET.

SIRS,—In answer to your correspondent "Mercury" in THE LANCET of Oct. 19th, who wishes to know of "a good motor for practice in a hilly country," I presume he wants petrol for the motive power; in this case he might carefully consider the advantages of the "Adams" car. This make of car is specially suitable for anyone who has not had previous experience in driving, having epicyclic speed change. He will not regret the extra expense if he has "elastes" in his driving tyres. I have no interest in either of the firms named.

I am, Sirs, yours faithfully,

Roche, Cornwall, Oct. 26th, 1907. C. E. ABBOTT, M.R.C.S. Eng.

To the Editors of THE LANCET.

SIRS,—In answer to your correspondent "Mercury," who asks for particulars of a good motor in THE LANCET of Oct. 19th, I give my experience of an 8–10 h.p. single cylinder Darracq, with tonneau. I have used it for a year and have had very little mechanical trouble, and only twice, at the most, has it failed to bring me home: once through the water filter getting blocked, and a second time owing to a slight adjustment being required which would have put the ignition right. In the first instance the car would have brought me home had I cared to take the risk. I went 3884 miles in the year and ran on an average 25 miles to the gallon of petrol, at a cost of 4½*d.* per mile, including man's wages, repairs, tyres, oil, grease and petrol, &c. The total cost was under £70 for the year. The car is not a fast one in going up hills, but will climb anything met with in an ordinary way. On the flat it can run 20 miles an hour comfortably.

Another good car (of which I know two) is the "Baby Peugeot." One has run constantly for the last three years and is still going well. The other belongs to a medical neighbour who ran an enormous number of miles with very little trouble and small cost. Of the "Baby Peugeot" I only know from hearsay, never having driven one.

I am, Sirs, yours faithfully,

Oct. 28th, 1907. POT. IOD.

"WAREHOUSE FILLINGS."

AT the Bristol police court on Oct. 25th and 26th a local upholsterer was charged with theft. Evidence showed that the plaintiff had sent six chairs and a couch to the defendant for the stuffing, which was black horsehair, to be re-arranged and the furniture was also to be repolished. When the articles were returned it was discovered that the original stuffing had not been used but that "dirt, shavings, and inferior horsehair" had been substituted. For the defence it was stated by witnesses that unless it was specially stated by customers that horsehair was to be used the stuffing material of 75 per cent. of upholstering of Bristol would consist of 25 per cent. of "warehouse fillings," and it was admitted that these "fillings were the sweepings of the warehouse floor." Eventually the upholsterer was committed for trial at the next assize, bail being allowed.

A DOUBLE MONSTER.

To the Editors of THE LANCET.

SIRS,—I beg to state that I delivered a woman of a double monster on Saturday morning, Oct. 26th. The patient was booked for Dec. 26th. Her abdomen was very much distended and the skin looked thin and shiny as if on the point of bursting. There was a pailful of liquor amnii. The legs were brought down and traction was made and the body and head came through without much difficulty. The head was enlarged—hydrocephalic. There were two eyes; one mouth, but the upper lip was enlarged and the middle of it was carried back as a fleshy mass along the middle of the palate. There were *four* arms and the body was joined, chest to chest, as far down as the umbilicus. I got the object sent to St. George's Hospital, where, I daresay, it can be seen by anyone interested in the abnormality.

I am, Sirs, yours faithfully,

Oct. 29th, 1907. WM. EVANS.

A MEDICAL BADGE.

To the Editors of THE LANCET.

SIRS,—For the information of "Senex" and of others who may desire to obtain the medical badge referred to in a former issue of THE LANCET I desire to say that it may be ordered of Messrs. S. Smith and Son, Limited, 9, Strand, London, W.C. The prices are 10*s.* 6*d.* in silver and 7*s.* 6*d.* in metal, with a deduction on a quantity. Brooches are 1*s.* 6*d.* extra in silver and 6*d.* in metal, or the badge may be swung upon a pin or placed with the family seals upon the watch-chain. In ordering it would be necessary to give the letters and country of the qualifications and to mention whether serving on hospital staff or M.O.H.

I am, Sirs, yours faithfully,

Knightwick, Worcs., Oct 28th, 1907. JOHN GOOD.

A HOME WANTED.

A MEMBER of the medical profession is deeply interested in two poor children—a boy aged ten and a girl aged seven years—who are afflicted with paralysis and suffering from mental weakness. Their mother is the widow of a colour-sergeant who after having served 22 years developed some cardiac trouble and was pensioned off but after a few months died leaving his family totally unprovided for. Our correspondent, who is unable to do anything to help them pecuniarily himself, is now anxious to find a home for these two children. The mother, who has four children, the other

two being younger, is in receipt of 3s. per week for each child from the Soldiers' Patriotic Fund, and it is certain that the money allowances made for these children by that fund would be paid to an institute which provided a home for these two children. Many attempts have been made to discover a home suitable for them but hitherto these efforts have been unsuccessful. If any reader can make any offer or useful suggestion will he kindly write to H. E., care of this office?

PARTNERSHIPS.

To the Editors of THE LANCET.

SIRS,—May I ask the opinion of yourself or your readers on the following case? A doctor recently purchased a partnership with another medical man, it being by the terms of the agreement an equal partnership. Difficulty has now arisen between the partners. The purchaser expected that one-half of the patients would be gradually transferred to him. This has not been done, and the vendor does not now admit any obligation upon him to do so; the financial claim is the only one he recognises. Is he right or wrong? If wrong, how are the patients usually transferred? Should there not be a mutual understanding as to the division of patients, so that each partner may have a distinct and equal *clientèle*? It may be stated that the purchaser is senior in age and in the profession by some years.

I am, Sirs, yours faithfully,

Oct. 28th, 1907. PUZZLED.

*** As a rule an equal partnership only means that each partner takes one-half the profits of the practice. If the patients prefer to see one partner rather than the other they are quite at liberty to do so.—ED. L.

J. B. R.—There is a note on Levico in "The Therapeutics of Mineral Springs and Climates," by I. Burney Yeo, M.D. Lond., F.R.C.P. Lond., published by Cassell and Co., Limited, in which it is stated that the season at that health resort is from June 1st to Sept. 30th. Our correspondent would, no doubt, get further particulars from Messrs. Ingram and Royle of 26, Upper Thames-street, London, E.C., who are agents for the sale of the water in this country.

Y. A. K. G.—Our correspondent is advised to refer to the Registrar-General's annual summary of births, deaths, and causes of deaths.

Anxious.—Our correspondent should consult his usual medical attendant.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (6th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30). P.M.

THURSDAY (7th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (9th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (5th).—ROYAL SOCIETY OF MEDICINE (MEDICAL SECTION) (20, Hanover-square, W.).—5 P.M.: Adjourned Discussion on Complications of Pneumonia (resumed by Dr. Hadley).

ROYAL SOCIETY OF MEDICINE (PATHOLOGICAL SECTION) (London School of Tropical Medicine, Royal Albert Docks, E.).—5 P.M.: Demonstrations:—Dr. Daniels and others. Papers:—Prof. Hewlett: On Visceral Hæmorrhages in some Recent Cases of Beri-beri.—Dr. J. M. MacLeod: The History of the Cutaneous Lesions in Yaws and Syphilis.

CHILD-STUDY SOCIETY (Parkes Museum, Margaret-street, W.).—8 P.M.: Lecture:—Dr. J. W. Slaughter: Play as a Factor in Education.

THURSDAY (7th).—RÖNTGEN SOCIETY (20, Hanover-square, W.).—8.15 P.M. Presidential Address:—Mr. W. Duddell: The Production of High Frequency Oscillations (with demonstrations).

NORTH-EAST LONDON CLINICAL SOCIETY (Prince of Wales's Hospital, Tottenham, N.).—4.15 P.M.: Clinical Cases.

FRIDAY (8th).—ROYAL SOCIETY OF MEDICINE (CLINICAL SECTION) (20, Hanover-square, W.).—8.30 P.M.: Exhibition of Cases. Short Paper:—Dr. J. Fawcett: Pneumothorax treated by Aspiration under X Rays. The Patients will be in attendance at 8 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (4th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—12 noon: Lecture:—Dr. Low: Pathological Demonstration. 2 P.M.: Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eye. 2.30 P.M.: Operations. 5 P.M.: Clinical Lecture:—Dr. Saunders.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. J. M. H. MacLeod: Clinique. (Skin.) 5.15 P.M.: Lecture:—Dr. F. J. Smith: Heart Disease without Murmurs.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—Cliniques:—10 A.M.: Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Medical Out-patient (Dr. T. R. Whipham); Throat, Nose, and Ear (Mr. H. W. Carson); X Ray (Dr. A. H. Pirie); 4.30 P.M.: Medical In-patient (Dr. A. J. Whiting).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.15 P.M.: Sir Dyce Duckworth: Medicine. 2.30 P.M.: Operations. 3.15 P.M.: Mr. W. Turner: Surgery. 4 P.M.: Dr. StClair Thomson: Ear and Throat. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat. 4 P.M.: Special Lecture:—Dr. StClair Thomson: Laryngeal Paralysis.

GREAT NORTHERN CENTRAL HOSPITAL (Holloway-road, N.).—9 A.M.: Operations. 2.30 P.M.: In-patients—Medical (Dr. Beevor); Out-patients—Medical (Dr. Willcox), Surgical (Mr. Low), Eye (Mr. Morton and Mr. Coates).

HOSPITAL FOR DISEASES OF THE SKIN (52, Stamford-street, Blackfriars, S.E.).—5 P.M.: Lecture:—Mr. T. J. P. Hartigan: Pyogenic Infections.

ROYAL DENTAL HOSPITAL AND LONDON SCHOOL OF DENTAL SURGERY (Leicester-square, W.C.).—5.30 P.M.: Mr. J. H. Mummery: Recent Views on Immunity in Relation to Dental Disease.

TUESDAY (5th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. M. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. X Rays. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Lecture:—Dr. Low: Sleeping Sickness.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. L. Williams: Clinique. (Medical.) 5.15 P.M.: Lecture:—Dr. N. Raw (Liverpool): Human and Bovine Tuberculosis, with Special Reference to Treatment.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—Clinique:—10.30 A.M.: Medical Out-patient (Dr. A. G. Auld). 2.30 P.M.: Surgical Operations (Mr. Carson). Cliniques:—Surgical Out-patient (Mr. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M.: Demonstration:—Injuries about the Elbow.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.15 P.M.: Dr. R. T. Hewlett: Medicine. 2.30 P.M.: Operations. 3.15 P.M.: Mr. Cariess: Surgery. 4 P.M.: Mr. M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

GREAT NORTHERN CENTRAL HOSPITAL (Holloway-road, N.).—2.30 P.M.: In-patients—Medical (Dr. Beale), Throat and Ear (Mr. Waggett); Out-patients—Surgical (Mr. Edmunds), Throat and Ear (Mr. French); Operations (Mr. Beale).

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—3.45 P.M.: Demonstration:—Dr. A. Wylie: Pharynx.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. J. Taylor: Ophthalmoplegia.

WEDNESDAY (6th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations. 5 P.M.: Lecture:—Dr. Beddard: Practical Medicine.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. M. Collier: Clinique. (Surgical.) 5.15 P.M.: Lecture: Dr. C. R. Box: Bacterial Invasion of the Urinary Tract in Childhood.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—Cliniques:—2.30 P.M.: Medical Out-patient (Dr. Whipham); Dermatological (Dr. G. N. Meachen); Ophthalmological (Mr. R. P. Brooks).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.15 P.M.: Dr. F. Taylor: Medicine. 2.30 P.M.: Operations. 3.30 P.M.: Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye. 3.30 P.M.: Special Lecture:—Mr. Cargill: Some Important Points in Ophthalmic Diagnosis.

GREAT NORTHERN CENTRAL HOSPITAL (Holloway-road, N.).—2.30 P.M.: In-patients—Surgical (Mr. Stabb); Out-patients—Medical (Dr. Horder), Gynæcological (Dr. Lockyer), Skin (Dr. Whitfield), Teeth (Mr. Baly); Operations (Mr. Stabb).

HOSPITAL FOR DISEASES OF THE SKIN (52, Stamford-street, Blackfriars, S.E.).—5 P.M.: Lecture:—Mr. T. J. P. Hartigan: Pyogenic Infections.

THURSDAY (7th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eye. 2.30 P.M.: Operations. 5 P.M.: Clinical Lecture:—Mr. Bidwell.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Lecture:—Dr. T. G. Stewart: The Diagnosis of Cerebellar Tumours.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—2.30 P.M.: Gynæcological Operations (Dr. Giles). Cliniques:—Medical Out-patient (Dr. Whiting); Surgical Out-patient (Mr. Carson); X Ray (Dr. Pirie). 3 P.M.: Medical In-patient (Dr. G. P. Chappel).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.15 P.M.: Dr. G. Rankin: Medicine. 2.30 P.M.: Operations. 3.15 P.M.: Sir W. Bennett: Surgery. 4 P.M.: Mr. M. Davidson: Radiography. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat.

GREAT NORTHERN CENTRAL HOSPITAL (Holloway-road, N.).—2.30 P.M.: In-patients—Medical (Dr. Morison).

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—6 P.M.: Chesterfield Lecture:—Dr. M. Dockrell: The Solution of the Confusion between Pityriasis Rubra Pilaris and Lichen, and the Treatment of each.

CHARING CROSS HOSPITAL.—3 P.M.: Demonstration:—Dr. Galloway and Dr. MacLeod: Diseases of the Skin. 4 P.M.: Demonstration:—Dr. Galloway: Medicine (Post-Graduate Course.)

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M.: Lecture:—Mr. Waugh: Appendicitis.

FRIDAY (8th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. M. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. X Rays. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Lecture:—Dr. Abraham: Cases of Skin Disease.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. H. L. Eason: Clinique. (Eye.)

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Prince of Wales's General Hospital, Tottenham, N.).—10 A.M.: Clinique:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M.: Surgical Operations (Mr. Edmunds). Cliniques:—Medical Out-patient (Dr. Auld); Eye (Mr. Brooks). 3 P.M.: Medical In-patient (Dr. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.15 P.M.: Dr. R. Bradford: Medicine. 2.30 P.M.: Operations. 3.15 P.M.: Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

GREAT NORTHERN CENTRAL HOSPITAL (Holloway-road, N.).—3 P.M.: Clinical Lecture:—Mr. Mower-White: Fractures and Dislocations at the Elbow-joint.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—3.45 P.M.: Demonstration:—Dr. A. Wylie: Pharynx.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. J. Taylor: Paralysis in Children.

SATURDAY (9th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. X Rays. 2.30 P.M.: Operations.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich.)—2.30 P.M.: Operations. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye.

HOSPITAL FOR DISEASES OF THE SKIN (52, Stamford-street, Blackfriars, S.E.).—5 P.M.: Lecture:—Mr. T. J. P. Hartigan: Eczema.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Oct. 31st, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Oct. 25	29·88	S.	...	78	55	41	43	43	Foggy
,, 26	29·77	E.	0·01	59	53	43	45	45	Foggy
,, 27	29·85	W.	...	54	49	44	43	44	Cloudy
,, 28	29·62	E.	...	68	55	44	46	46	Foggy
,, 29	29·30	E.	...	62	55	46	49	49	Raining
,, 30	29·18	E.	0·23	66	56	49	52	53	Overcast
,, 31	29·68	S.W.	0·04	80	57	49	49	50	Hazy

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